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THE COLLEGE OF AGRICULTURE
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INTRODUCTION

THIS REPORT IS THE EIGHTH in a series of annual outlook reports prepared by the College of Agriculture and made available to farmers and those interested in the agriculture of the state through the Agricultural Extension Service of the University. It is based upon an analysis of available information—state, national, and international—which has a bearing upon the prices received by California farmers for their products.

The purpose of this report is to make available to the farmers of the state information that will afford them a better understanding of the conditions in the markets where their products are sold and of the forces which influence prices. In formulating farming plans and programs and in deciding on adjustments that may be desirable on any farm or in any area, producers—individually and collectively—should take into account not only the conditions on their own farms, but also market conditions and price prospects. Further, the welfare both of individual farmers and of whole groups in particular areas will be affected by the plans which producers in competing areas are making. Planning with a fuller knowledge of all these influences will help farmers to hold the gains of recent years and will be necessary if the agricultural production of the different areas in the state in the year ahead is to be kept in balance with production in other areas and states, and in line with the best interests of the nation.

In arriving at the judgments expressed in the following pages many agencies have been drawn upon.² The statements concerning the probable course of prices of specific commodities in 1936 represent the best

¹ Paper No. 58, The Giannini Foundation of Agricultural Economics.

² Among the more important of these are the United States Department of Agriculture, the United States Department of Commerce, the California Coöperative Crop Reporting Service, the Federal-State Market News Service, and other branches of both state and federal governments; also many coöperative associations, commercial firms, and trade associations. The national *Agricultural Outlook for 1936* prepared by the staff of the United States Department of Agriculture Bureau of Agricultural Economics, assisted by representatives of the State Agricultural Extension Services and the Agricultural Adjustment Administration, has been particularly helpful and has been quoted extensively for those products grown throughout the United States.

judgments of those who prepared them. They should be helpful to the farmers of California individually and collectively in reaching decisions on the quantities of the different agricultural commodities they should plan to produce and market.

The general level of agricultural prices in the United States has been trending upward for the past three years. On the average, farm prices in the United States are over 60 per cent higher in 1935 than they were in 1932. While the volume of production and marketing of all agricultural commodities has been somewhat less since 1932 than in the years immediately preceding, gains in prices have been greater than decreases in production and marketing, and the cash income from farm marketing in the United States rose from 4.3 billion dollars in 1932 to 6.3 billion dollars (including rental and benefit payments) in 1934, and indications now are that it will probably be 6.8 billion dollars in 1935. This compares with an average of about 10 billion dollars from 1924 to 1929.

California farmers have shared with those of other states in these rising prices and incomes. Farm prices in California in 1935 are, on the average, approximately 35 per cent above those of 1932. These gains have been largely due to increasing consumer purchasing power in this country, to the reduction of excessive supplies which had accumulated prior to 1932, and, for a number of commodities, to better adjustments of current production and marketings.

In 1934, the volume of production of many agricultural commodities in the United States was lower than it had been for many years, principally on account of a nation-wide drought. Agricultural production as a whole in 1935 was considerably greater than in 1934. It is probable that for some commodities it will be to the advantage of producers, as well as of consumers, to plan for a production in 1936 somewhat greater than in 1935. Statements covering many important agricultural commodities are found on the following pages.

ALMONDS

Almond prices should be favorably affected by continuation of the upward trend in consumers' income. Productions has declined each year since 1931. The bearing acreage has remained almost constant during that period. New plantings have increased but only sufficiently to result in a slight increase in bearing acreage during the next five years. The most uncertain factor in the almond industry is competition from other nuts, including imports and those produced domestically. The trend of almond consumption in the United States has been downward since 1919. For the five-year period 1919-1923 the apparent per-capita con-

sumption, in equivalent unshelled, was 0.88 pound a year. In 1934 the per-capita consumption, in equivalent unshelled, was 0.25 pound. Much of the drop since 1929 is attributed to the falling off in purchasing power. Any improvement in consumers' income may be expected to reflect an upward trend in price because of the improbability of any material increase in production.

The peak of almond production in California was in 1926. In that year 16,000 tons were produced on 73,644 acres. In 1935 the acreage in California, the only state now having commercial production, was 72,309.

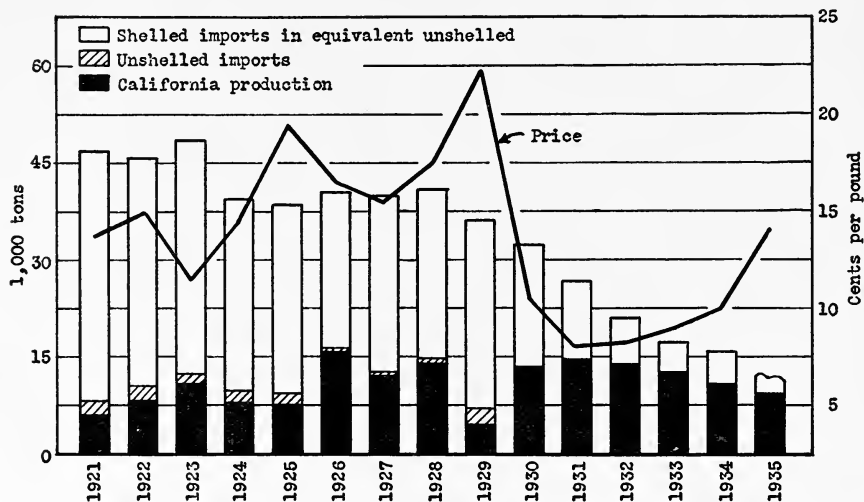


Fig. 1.—United States supply of almonds and price per pound paid California growers. California is the only state now having commercial production of almonds.

Each of the past two years has shown a slight increase over the preceding year. There will probably be some additional increase in bearing acreage for the next few years, inasmuch as young orchards are slightly more than sufficient to make normal replacements. Nonbearing acreage was 5,912 in 1933, 6,126 in 1934, and 6,745 in 1935. The 1935 nonbearing orchards represent 8.5 per cent of the total plantings.

The 1935 production of almonds is now estimated at 9,100 tons, which is almost 16 per cent below the 1934 crop, and is 31 per cent below the five-year average ending in 1934. During that period the average annual production was 13,220 tons.

Decreased production during the past two years does not represent a permanent trend downward, and with normal climatic conditions during the next few years production is more likely to equal the quantity produced during the 1930–1934 period.

The imports of unshelled almonds into the United States are negligible. Imports of shelled almonds have continuously declined since 1921. In that year total imports, in equivalent unshelled, were 40,841 tons. In 1934 total imports, in equivalent unshelled, were 4,907 tons. Foreign production is expected to be smaller in 1935 than in 1934. The prediction is for a shelled production of 63,200 tons, as against 69,200 tons during the preceding year. Higher domestic prices may possibly attract greater imports during 1935 than in either 1933 or 1934. It is apparent that any reduction in the tariff schedule would result in increased imports because of the relatively heavy foreign production which is likely to continue during years of favorable growing conditions.

Almonds have experienced considerable competition from other nuts in recent years. In 1929 the consumption of cashews, all of which are imported, represented less than one-third of one per cent of the total nut consumption. By 1934 it had reached 14 per cent and was exceeded only by walnut and pecan consumption. Pecan production for 1935 is predicted at 39,430 tons. This represents an increase of more than 39 per cent of the five-year average production for 1930-1934. Pecan prices have been such that the wide spread which prevailed a few years ago between pecan prices and prices for almonds and walnuts has narrowed and in some cases has been completely eliminated. Further competition can be expected from both walnuts and pecans during the next several years.

APPLES

Prospects for smaller late-apple crops than the national average of the past five years, together with anticipated improvement in domestic demand as economic conditions at home become better, lend some hope to at least a moderate rise in prices to growers during the next few years. Keen competition from other fruits, however, especially citrus fruits, will continue. Moreover, United States exports of apples cannot be expected to expand much unless present barriers to international trade are lowered considerably or an effective method devised to overcome them. Increasing competition may be expected in overseas markets if foreign countries succeed in their efforts to increase the production and improve the quality of their apples.

Late-apple production has fallen off more rapidly in California in recent years than in the Northwest or the East. Average production of all apples in California during the past five years (1931-1935) of about 8,900,000 bushels has constituted 5.7 per cent of national production or about the normal proportion to be expected during the next few years. The good 1935 state crop is estimated (October 1) as 10,400,000 bushels,

or about 6 per cent of the United States total. Preliminary estimates of the California Coöperative Crop Reporting Service show approximately 41,800 acres of all apple varieties in bearing in the state and about 2,700 acres, or only about 6 per cent of the total, not yet in bearing. In comparison, about 20 per cent of the national apple acreage is not yet of bearing age. Moreover, of the commercial bearing acreage of apples only about 12 per cent is less than seventeen years old in California as compared with about 28 per cent for the United States as a whole. These figures indicate that apple production will probably decline at a more rapid rate in California than in the rest of the United States during the next decade.

Newtons and Bellflowers, the chief late varieties grown in the state, produce exceptionally good yields at a low cost in the Watsonville district. Moreover, shipping them loose in unlidded boxes by trucks lowers the cost of marketing. However, growers in this district need to organize to improve their bargaining power and to promote efficient marketing methods. The light color of these apples and the fact, generally recognized, that they do not develop a high eating quality when produced here, places them at a distinct price disadvantage with the large quantities of bright-colored varieties shipped in from other states. Bright-colored varieties of apples of high quality can be grown in some mountain areas of the state, but the yields are usually too small to be profitable on a commercial scale.

From 1920 to 1930 there was a very rapid upward trend in production, fresh shipments, and dried output of California Gravensteins, by far the most important early variety grown in the state. Since 1930, however, the trend has flattened out and it now appears that normal Gravenstein production in Sonoma and Napa counties will decline. With large Gravenstein crops and depressed demand during the past six years, grower prices have been very unsatisfactory, averaging considerably less than 50 cents a box for the Fancy grade of fresh shipments, which averaged over 1,200,000 boxes annually during this period and amounted to over 1,500,000 boxes in both 1932 and 1935. An average of nearly a million boxes a year was also dried. Few, if any, new plantings of Gravensteins in the Sonoma-Napa district have been made during the last few years, and growers are reported to be so discouraged with the unsatisfactory yields and low prices that they have been grafting Gravenstein trees or planting late varieties which they believe will bring better returns.

Some decrease in Gravenstein acreage appears desirable. Germany's lack of foreign exchange has seriously curtailed the export market for

dried apples. Moreover, fresh shipments of summer apples from California are likely to meet keen competition during the next decade from a plentiful supply of early eastern apples. Many of these are grown at a comparative economic advantage to California Gravensteins and are produced in sections that are within easy trucking distance of the largest consuming markets of the East and Middle West. A survey of commercial apple orchards made by the United States Department of Agriculture in 1928 showed that approximately 40 per cent of the early varieties of apple trees in the ten states leading in early-apple production were less than nine years old. Only 16 per cent of the California Gravenstein trees were this young in 1928.

Large yields of high-quality fruit produced at a low cost appear to be increasingly necessary to early-apple producers in California in order to compete with supplies produced in the East. It is particularly important that a nicely balanced relation between production of California Gravenstein apples and eastern demand for them be maintained since costs of marketing and transportation are relatively high as compared with those borne by competitive supplies of early eastern apples produced near the big consuming markets.

APRICOTS

The gradual decline in the bearing acreage of California apricots in prospect during the next few years will probably be largely counterbalanced by increased yields per acre from young trees that have recently come into bearing and from increased productivity resulting from the forecasted upward swing in rainfall in the state.³ The large normal crops therefore to be expected are likely to largely offset anticipated improvement in demand, and, as a result, apricot prices to growers are likely to be relatively unsatisfactory during the next few years except in years when state yields per acre are considerably below average. However, the great fluctuations in state yields that have characterized the industry are likely to continue to be a major cause of violent changes in grower prices from year to year and a cause of unequal distribution of income among individuals and producing districts. Although domestic demand is expected to improve during the next few years as consumer purchasing power increases, corresponding improvement in foreign markets, upon which California is very dependent, appears unlikely because of the many barriers to international trade and the great difficulty of overcoming them.

³ Forecasted by the Scripps Institution of Oceanography.

The bearing acreage of apricots in California rose from about 46,000 acres in 1919 to a peak of 82,700 acres in 1928. About 80,000 acres were in bearing in 1935 and an additional 2,500 acres, or 3 per cent of the total in nonbearing trees. Low yields per bearing acre in 1934 and 1935 (1.8 and 2.4 tons, respectively) resulted in crops considerably smaller than the present bearing acreage would produce with normal weather conditions. At 3.0-ton yields, the average for the preceding five years, the present bearing acreage would produce 240,000 tons of apricots. That crops that large are not unreasonable to expect when weather conditions are at least average is shown by the fact that yields averaged nearly 3.4 tons per acre in 1931–1933 and production about 272,000 tons a year.

With such large supplies, prices to growers were painfully low, averaging only about \$25 a ton for 1931–1933. The 139,000-ton crop of 1934, the smallest in many years, was the chief cause of the high state average farm price of about \$54 for that year. With a somewhat larger crop of 191,000 tons in 1935 and with prospects for almost no exports of dried fruits to Germany, grower prices appear to have averaged \$10 to \$15 a ton less for the crop than in 1934.

Dried Apricots.—It appears easier to expand the market for dried apricots than for canned and fresh fruit, particularly in bad times, for the quantity dried in California has increased at a more rapid rate than total state production during the past decade. Of the large annual average of 266,000 tons harvested during 1931–1933, about 76 per cent were dried, only slightly over 14 per cent canned, and about 10 per cent consumed fresh. For the smaller 1928–1930 average of 194,000 tons, approximately 64 per cent were dried, 25 per cent canned, and 11 per cent consumed fresh. Utilization of the small 1934 and 1935 crops was relatively about the same.

Ordinarily, the carryover of dried apricots is small, and so California shipments have been about the same as the dried output in recent years. This state is the world's largest commercial apricot-producing region and usually exports nearly half of the dried output. However, only 45 per cent of the small 1934 crop was shipped abroad, or approximately 7,600 tons (excluding quantities in dried-fruit mixtures). Such light exports largely reflect the small California crop and the resulting high prices, together with a marked reduction in foreign demand as a whole due largely to almost prohibitive foreign-exchange restrictions in Germany and Denmark. Exports to these two countries accounted for only 13.4 per cent of total exports from the 1934 crop as compared with 40 per cent for the preceding five years. Unless the tariff and foreign-ex-

change policy of these two countries is drastically altered to favor imports of our dried fruits, they will continue to import only small quantities of our apricots. Increasing South African production and exports of dried apricots have permanently curtailed California exports to the United Kingdom in recent years. The marked upward trend in French imports of our dried apricots is the most encouraging fact about the foreign-market situation for this same period. However, considerably more improvement in total European imports than is now in prospect will be necessary if foreign markets are to continue to absorb approximately one-half of the large anticipated dried output of California apricots during the next few years at anything but very low prices.

Growers in the Santa Clara Valley received from 10 to 14 cents a pound for Choice dried Blenheims from the 1935 crop, or about 3 cents a pound less than in 1934. Packers' quotations on Choice fruit for July through October, 1935, were about 4 cents a pound less than in 1934, averaging about 13¾ cents a pound.

Canning Apricots.—Probably as many as 46,000 tons of apricots were canned in 1935, making at least 2,500,000 cases or about 13 per cent more than the average pack of the preceding five years. The carryover in canners' hands, sold and unsold, on June 1, 1935, was 227,000 cases. Supplies of canned apricots available for the 1935 marketing season, therefore, were probably over 2,700,000 cases, or nearly the largest since 1930 and greater than shipments in any year since 1929. Total shipments of 1,714,000 cases during the 1934 season were the smallest since 1921, as were exports also, which amounted to only 237,000 cases, or about 14 per cent of the total. During the 1934 season, the United Kingdom, as usual, took over 80 per cent of the exports.

Prices of California canning apricots in 1935 were about \$15 a ton less than in 1934, bringing about \$55 in the Santa Clara district for fruit averaging 14 to the pound. Canners' prices for the 1934 canned-apricot pack averaged \$1.73 a dozen for all grades and sizes, or about \$0.40 more than during the 1933 season. Quotations for the 1935 pack opened at about \$0.35 lower than in 1934 and have recently declined still further.

Fresh Consumption.—The small quantity of California apricots eaten as fresh fruit has averaged only about 10 per cent of the total crop in recent years. A maximum of approximately 30,000 tons was consumed fresh in 1931, or 13.4 per cent of the 273,000 tons harvested. Growers' returns were ruinously low that year, and it will probably be several years before as much as 30,000 tons can be marketed fresh from large crops at as relatively a satisfactory return as for dried and canning fruit, even if demand improves considerably.

More than 60 per cent of the apricots sold for fresh consumption in recent years have been consumed in California itself and the proportion is likely to continue to be nearly as great. The necessity for handling this highly perishable fruit quickly has restricted sales in the East chiefly to a few large auction markets and greatly limited interstate shipments. Even in 1931 and 1932, with shipments of about 1,000 cars a year, the largest interstate movement on record, only about 12,000 tons a year were sold in eastern markets. Demand will have to improve greatly or transportation costs be drastically reduced before that large an interstate movement will return growers anywhere near a satisfactory price. Judging by New York auction prices, interstate shipments of nearly 400 cars brought an f.o.b. return of about \$0.77 a crate in 1935 as compared with \$1.04 for 340 cars in 1934 and \$0.99 for 581 cars in 1933. The 1,000-car average in 1931 and 1932 returned only about \$0.57 a crate.

AVOCADOS

Higher prices are likely to prevail for the 1935-36 crop of avocados than those received during the past season. Unless there is considerable improvement in the general price level, however, the average returns per pound over the next several years are likely to be as low as the 1934-35 prices, if not lower.

Preliminary estimates of Calavo Growers of California indicate a crop in this state for 1935-36 of 9 million pounds. The crop during the season just past amounted to 18,720,000 pounds or approximately twice the estimated production for 1935-36. The present California crop was late, and heavy shipments did not begin until after the middle of November. This meant a slack period between the clean-up of the old-crop and new-crop shipments, which resulted in higher price levels this year than at the beginning of the shipping season in 1934. The net returns to its members made by Calavo Growers of California in September, 1935, was \$1.45 a flat as compared to \$0.88 a flat in September, 1934. Damage to the avocado crop in Florida is estimated at 50 to 75 per cent. All of these factors, together with the announced program of the Association to continue its aggressive sales plan, point to fairly good returns for the current crop.

From a longer-time point of view the situation is quite different. The trend of production will probably be sharply upward for the next four years. In 1935, total acreage of avocados in California was 12,975. Of this amount, 4,411 acres, or 34 per cent of the total were nonbearing. At the present rate of increase the bearing acreage will reach 12,000 within

the next four years. In 1927 California had only 690 bearing acres. Each succeeding year shows a substantial increase, and in 1935 there were 8,564 bearing acres. New plantings have declined during the past two years, and the rate of increase in bearing acreage after 1940 will probably be retarded.

California avocado production for the past five years has been as follows: 1930-31, 4,220,000 pounds; 1931-32, 5,050,000 pounds; 1932-33, 3,294,000 pounds; 1933-34, 4,900,000 pounds; 1934-35, 18,720,000 pounds. The average yearly production per acre during that five-year period has been 1,465 pounds. Since many of the trees are approaching an age of higher production, it is reasonable to expect a higher yield in coming years. The combination of increasing bearing acreage and increasing age of trees already in bearing will, under normal growing conditions, bring crops approaching or even exceeding 20 million pounds.

Florida production has also shown a rapid increase during the past five years. In 1929-30, the Florida production was 840,000 pounds; in 1934-35 it had reached 4,000,000 pounds. No accurate acreage data are available, but because of the constant increase in production in that state it is reasonable to expect that there will be some further increase during the next few years. While their crop was severely damaged this season there is no apparent damage to trees, and a good crop is expected next year.

Imports of avocados have fluctuated widely from year to year. In 1931-32 total imports amounted to 10,194,000 pounds, while in 1933-34 the imports were 5,263,000 pounds, practically all of which came from Cuba. Preliminary 1934-35 figures indicate an increase in imports over the preceding year. Imports from Cuba come in during the months of June, July, August, and September, duty free. During normal years considerable competition for domestic production can be expected from that source.

California farm prices of avocados have declined sharply. In 1929-30, the average price per pound was 33 cents; the following year 13 cents; and 3 cents in 1934-35. While a large part of the decline is attributable to the drop in the general price level of all commodities, a substantial part is the result of increased production. It is apparent that the avocado industry is faced with a definite problem of widening its distribution and encouraging consumption. Unless this is done, further plantings are only justified under reduced cost conditions.

GRAPEFRUIT

With average growing conditions in the United States, it appears that growers can expect grapefruit crops in excess of 20,000,000 boxes to occur frequently over the next decade. In view of this, the restoration of prices to the predepression level cannot be expected. For 1935-36, the outlook is for a relatively small crop and relatively high prices, although the level of prices will not be as high as those prevailing before 1930.

Total United States grapefruit production in 1935-36 was expected to be 18,088,000 boxes according to the November 1 estimate. This is 23 per cent larger than the 1928-29 to 1932-33 average, although it is 15 per cent smaller than the 1934-35 production. Last year's crop was 21,357,000 boxes, the largest on record. Commercial production in this country in 1934-35 amounted to about 13,041,000 boxes. This was 1,710,000 boxes greater than the average for 1928-29 to 1932-33.

Grapefruit production has not moved upward as rapidly as the acreage situation would indicate because of storms and frosts. There are about 192,000 acres of grapefruit trees in the United States, 19 per cent of which have not yet reached bearing age. Of those now in bearing, 58 per cent are from four to ten years old. A year of average growing conditions in all of the four principal grapefruit-growing states might mean a crop of about 25,000,000 boxes, or 70 per cent more than the average for the five years beginning in 1928-29.

For the second successive year, storms reduced the 1934-35 Texas crop far below early estimates. Final estimates of it show 2,750,000 boxes, or 89 per cent greater than the 1928-29 to 1932-33 average. The present estimate of the 1935-36 crop is 3,080,000 boxes. The trees now in bearing in Texas are capable of producing a crop of 5,000,000 boxes with average weather conditions, and with good conditions might grow more than 6,000,000 boxes. About 74 per cent of the Texas grapefruit acreage is now in bearing, of which about 66 per cent is from four to ten years old. That state has more trees than Florida, and in the group from four to ten years old, Texas has almost three times as many trees as Florida.

In Florida, last year's crop was 15,200,000 boxes. For 1935-36, the estimated production is 10,500,000 boxes. About 90 per cent of Florida's total acreage in 1935 was in bearing. It is apparent then that unless there is widespread abandonment, neglect, or unless serious damage occurs to trees as a result of frosts or storms, the trend of production in Florida will rise during the next ten years. Probably the canning outlet will be used for increasing quantities of Florida grapefruit. In 1934-35,

5,825,000 boxes, or 38 per cent of the total grapefruit production, were canned as hearts and juice.

The 1935-36 production in California is estimated to be 2,348,000 boxes and that in Arizona, 2,160,000 boxes. For California this estimate is almost twice as large as the 1928-29 to 1932-33 average, and for Arizona, it is over five times as large as the corresponding average. For the two states combined, the prospective crop is 4,508,000 boxes, or two and three-fourths times as large as the five-year average. The acreage situation shows that, barring serious crop or tree destruction from natural forces or extensive abandonment or neglect, crops as large as those forecast for California and Arizona in 1935-36 are likely to occur frequently in the next ten years. Of the total acreage in Arizona in 1935, 25 per cent was of nonbearing age. In California almost 6,000 acres, or 29 per cent of the total acreage, were nonbearing in 1935. California's nonbearing acreage is more than four times as large as the amount which will provide for normal replacements. As the additional acreage comes into bearing there will be a corresponding increase in production. Larger production must also be expected from about 10,000 acres of the present bearing acreage which is still from four to ten years of age.

In 1934-35, California's commercial production was 1,676,000 boxes, while that for Arizona was about 465,000 boxes. Together these two states produced commercially about 2,141,000 boxes, or twice the average for the five years beginning in 1928-29. The average f.o.b. price received for California grapefruit shipped between November and April, 1934-35, was \$1.47 as compared with \$1.50 in 1933-34.

Exports of grapefruit from the United States in 1934-35 were 1,022,000 boxes, or 8 per cent of domestic commercial production. A notable feature of the year was that exports to the United Kingdom (44 per cent of total) were less than usual. Imports into the United Kingdom from British countries (mainly South Africa and the British West Indies) were 62 per cent of the total, whereas over the preceding five years they averaged 27 per cent of the total. This is, in part, due to the preferential tariffs for Empire countries. In Palestine and South Africa, the trend of grapefruit production is upward. Grapefruit from those countries and Cuba and Jamaica compete with that from the United States for the world market outside this country. The trend of world production will be sharply upward during the next decade. The extent of the United States' participation in foreign markets will depend upon the possibility of expanding the demand for grapefruit, the future course of nationalistic trade barriers, the extent of competition from other fruit, and changes in purchasing power abroad.

GRAPES

Until economic conditions substantially improve there is danger that normal crops from the present bearing acreage of grapes in the United States may exceed the quantity our markets can reasonably be expected to consume as fresh table grapes, raisins, wine, and brandy, and prices to growers will continue to be relatively low. Moreover, foreign supplies of grapes and grape products will probably be so plentiful during the next few years that competition will continue to be keen in foreign markets, and imports will invade our domestic market unless restricted therefrom. Foreign import duties and trade restrictions are also likely to be so great that our export markets will continue to absorb only relatively small quantities of raisins, grapes, and wine, even at low prices.

Although improved economic conditions will bring about some increase in demand and consumption of grapes and grape products in the United States during the next few years, it is questionable whether such improvement will be great enough to remove the danger of excessive supplies of all classes of grapes whenever weather conditions result in yields near normal. Forecasted United States production for 1935 is 2,327,000 tons (October 1), of which 2,053,000 tons is in California. However, the California crop was late in maturing, and early rains greatly lowered both the quality and the quantity of marketable fresh grapes and raisins. Prices to California growers for the 1935 crop will average lower than in 1934, although Muscat raisin prices will average higher. Yields, judged by the crop condition, are estimated at about 9 per cent above the 1923-1932 average, and about 29 per cent above the average for 1934. Average national production of 1,821,000 tons for 1931, 1933, and 1934 was below normal, largely because of unfavorable weather conditions and heavy insect infestations in California. With normal weather conditions, average crops from the present acreage probably would be at least 2,000,000 tons; United States crops about as large as this may be expected during the next few years whenever weather and other growing conditions are near normal, since present bearing acreage is likely to decline but slowly. The preliminary 1935 estimates of the California Coöperative Crop Reporting Service indicate about 501,700 bearing acres of grapes in California and about 5,300 acres not yet in bearing.

Table Grapes.—As business conditions and purchasing power improve, the demand for table grapes may be expected to show a gradual upward trend. However, supplies of table grapes will probably be sufficient to care for expected increases in consumption for several years.

The present bearing acreage of table grapes in the United States is likely to decrease but slowly. Domestic supplies also may be augmented by importations from Almería, Spain. Moreover, as the market for table grapes improves, some of the tonnage now diverted to commercial wine and brandy manufacturing will again be in demand for fresh table-grape consumption.

The acreage data for table-grape varieties in California indicate a slight downward trend in the next few years, with preliminary estimates of 87,600 bearing acres in 1935 and about 600 not yet in bearing. In eastern states drought, winter damage, and floods have caused considerable damage to vineyards in the last two years, particularly in New York. This damage will tend to lower production during the next few years. New and replacement plantings, however, may largely offset the reduced acreage in this section.

Total California production of table-grape varieties for 1935 is forecast at 362,000 tons (October 1) and production of all varieties in other states about 274,000. This is approximately 10 per cent greater than the productivity of the present acreage at average yields. Only a small part—10 to 20 per cent—of the production of grapes in states other than California is ordinarily used for making wine, but a much larger percentage of California production of table varieties will probably continue to be used in the manufacture of wine and brandy. Approximately 40 per cent of the 1933 and 1934 crops of California table-grape varieties were used in this way. The extent of this utilization will, of course, depend on the quantity demanded by consumers and the price of fresh table grapes as compared with the supply and price of wine grapes.

Wine Grapes.—In addition to an average of over 120,000 tons of table-grape varieties used in the commercial manufacture of wine and brandy in California in 1933 and 1934, crops of wine-grape varieties in the state, averaging 448,000 tons a year, were used directly or indirectly for this purpose. Production in 1935 was 523,000 tons (October 1). In 1933 and 1934, 136,000 tons of wine grapes a year, or 30 per cent, were shipped out of the state and used largely in home wine making in the eastern states. The remainder was all used within the state, very largely by commercial wineries and distilleries which also used about 85,000 tons of fresh raisin grapes annually in 1933 and 1934. Furthermore, an average of approximately 3,000 cars a year, or at least 40,000 tons, was shipped out of the state for utilization by home wine makers. Practically all of these raisin grapes shipped East as juice stock were of the Muscat variety, as were a large majority of the raisin grapes crushed within California.

In addition to supplying as great a tonnage of table grapes and raisins as has been consumed annually during the last five years, the present bearing acreage of grapes in the United States is sufficient, at normal yields per acre, to provide for as large a per-capita consumption of wine and brandy as was ever absorbed in the country before Prohibition, even under circumstances much more favorable to consumption than can reasonably be expected to prevail for several years. Normally, not only large crops of the strictly wine-grape varieties, but also considerable quantities of raisin and table varieties—such as the Muscat, Tokay, and Malaga—will continue to be available for wine and brandy making in California.

The total bearing acreage of vineyards in the United States is not likely to decrease much during the next few years. The California bearing acreage of strictly wine varieties is estimated at 183,300 in 1935 and the nonbearing at 3,300. Plantings of true wine-grape varieties made in California since Repeal are probably sufficient to just about maintain the present bearing acreage of this class of grapes, while the acreages of table and raisin grapes will probably about hold their own. On the other hand, the major influences determining wine and brandy consumption in the United States during the next few years are likely to be less favorable to high per-capita consumption than they were during the peak period of consumption in pre-War days. It appears, therefore, that the wine, brandy, and wine-grape industries will probably go through a difficult period of readjustment of supply, demand, and prices during the next few years.

Since Repeal commercial fortified sweet wines have been much more popular than dry wines. However, the sweet wine and brandy industries have now probably overexpanded their capacity and will find it difficult to satisfactorily market as large quantities as they have facilities for producing and storing. The greater part of the dry wine consumed outside of California is now made by consumers themselves, who appear to demand primarily a low-cost product, rather than one of high quality. The outlook for sections of California producing low yields per acre of grapes adapted primarily to making dry wines appears relatively the most unfavorable. Present indications are that it may take several years to revive as great a demand for good *commercial* dry wines in this country as existed before the World War. Plantings of grapes in those localities which produce dry-wine grapes of excellent quality but of low yields per acre should be made with caution until better indications are available regarding future demand for good commercial dry wines in the United States.

Raisin Grapes.—Although commercialization of wine and brandy production since Repeal appears to have resulted in an increased quantity of California raisin grapes' being used for this purpose, expansion of the present acreage does not appear justified, in view of the poor demand for our raisins in both domestic and foreign markets in recent years, the prospects for large normal crops of raisins in foreign countries, and the high tariff duties and restrictions on imports of our raisins into important foreign markets. There may continue to be a somewhat greater demand for California raisin grapes for the commercial manufacture of sweet wine and brandy than existed before Repeal, but this demand may not continue to be so great after depleted stocks of sweet wine and brandy have been built up to normal requirements. The higher prices prevailing for California raisins during the greater part of the crop years 1933–34 and 1934–35 were due to the small tonnage dried and to control measures under a marketing agreement.

Approximately 10 per cent of the raisin-grape crops of 1933 and 1934, averaging 924,000 tons, was used for commercial manufacture of wine and brandy in California; another 10 per cent was consumed for fresh table purposes, and the remainder of about 80 per cent was dried. Crops below average in these two years, combined with the relatively good commercial demand for crushing, were largely responsible for the small tonnage dried. An average of 183,000 tons of raisins a year was produced, which is considerably less than might reasonably be expected to be dried from normally larger crops in prospect.

The forecasted 1935 California raisin-grape crop is 1,168,000 tons (October 1), but early rains have seriously damaged a large tonnage, lowering quality, and greatly reducing merchantable supplies. Three California raisin-grape crops in the past four years have been abnormally small, averaging 874,000 tons a year. These small crops were largely due to low yields per acre, resulting from scarcity of water, excessive summer heat, and damage from leafhoppers. With normal weather conditions and reasonable control of insect pests and diseases, the 230,700 bearing acres of raisin grapes in the state in 1935 are capable of producing at least 1,000,000 tons of raisin grapes a year. Of this total tonnage, an average of about 70 per cent of Thompson Seedless (Sultanina) may be expected, about 25 per cent of Muscat, and somewhat less than 5 per cent of other varieties. About 1,500 acres of raisin grapes are estimated as of nonbearing age in 1935.

Total consumption of California raisins during the past two marketing years (beginning September 1, 1933) has averaged only a little over 190,000 tons a year. A carryover in the state of at least 100,000 tons

of old raisins on September 1, 1933, largely counterbalanced the effect of the small tonnage dried. About 75,000 tons of old raisins are estimated to have been available in the state on September 1, 1935. The consumption of California raisins during the past four years has been small, in both the domestic and foreign markets, averaging about 196,000 tons a year. United States consumption has been about 140,000 tons a year and exports about 56,000 tons. Domestic consumption, however, has remained fairly constant in contrast with a decline in exports (including Canada) to about 50,000 tons during the 1934-35 marketing season. The domestic demand for California raisins may be expected to recover somewhat as economic conditions improve. However, consumption of California raisins in foreign markets will probably increase rather slowly, if at all, during the next few years, considering the large competitive crops of foreign raisins and the severe restrictions to imports into the chief foreign markets. Even with very low export prices for raisins, the expansion of sales to foreign countries will probably be difficult unless present trade barriers to international trade are lowered considerably or an effective method devised to overcome them.

LEMONS

As the relatively large nonbearing acreage of lemons in California comes into full-bearing, production is likely to increase with average growing conditions, beginning about 1937. Unless exports expand further or new domestic outlets are developed, lower prices may be anticipated at that time.

Preliminary 1935 estimates indicate that there are about 52,500 acres of lemon trees in California, exclusive of 1935 plantings. Of this number 10,700, or 20 per cent are nonbearing. This means that over the next five years bearing acreage will show a net average increase of from 500 to 1,000 acres a year, barring losses from natural forces. Bearing acreage is now about 1 per cent greater than the average from 1928 to 1932, but nonbearing acreage is more than 200 per cent greater than it was in those years.

In 1934-35, commercial production was about 10,400,000 boxes. This was 42 per cent above the 1933-34 crop of 7,300,000 boxes and 52 per cent greater than the average of 6,820,000 boxes for the preceding five years. The condition of the 1935-36 crop was estimated on November 1 as 68 per cent of a full crop as compared with 80 per cent a year earlier and 80 per cent for the 1923-24 to 1932-33 average. Owing to the relatively low-crop condition, 1935-36 production will be relatively small

and with normal or above-normal summer temperatures, prices received will probably be higher than in 1934-35.

Shipments of California lemons in 1934-35 amounted to 7,209,000 boxes. This was an increase of 15 per cent above 1933-34, and exceeded the 1928-29 to 1932-33 average of 5,458,000 boxes, by 32 per cent.

Imports of lemons in 1934-35 were about 4,000 boxes—the smallest on record over a twenty-eight year period. Lemon production in Italy and Spain is not showing much increase. Exports of the rather short 1934-35 Italian crop to the United States, and (of more significance to California lemon growers) to the United Kingdom and Canada were much smaller than usual. Because of this fact and the pressure of supplies in the domestic market, California shipments to Europe expanded greatly. In 1934-35, total exports were more than 500,000 boxes, or the largest on record.

The net supply of lemons for the United States in 1934-35 was almost 1,000,000 boxes larger than the 1928-29 to 1932-33 average of 5,700,000 boxes. In view of the large potential increases in California lemon production, the export market is of extreme importance as an outlet for surplus lemons. Increase in United States population is not likely to relieve appreciably the pressure of lemon supply. The demand for lemons is such that a given percentage increase in the supply marketed as lemons in this country results in a much greater percentage decrease in price and gross income to the industry. In the long run, the development of new types of demand for lemons and a higher per-capita use may be accomplished by aggressive merchandising and advertising efforts. In a given year, summer temperatures and the supply of lemons marketed will be the main price-determining factors.

The average f.o.b. price for shipments from November, 1934, through July, 1935, was \$2.73 a box, as against \$3.77 for the same period in 1933-34. In addition to the influence of the large supply, this price may be attributed to a lower average summer temperature in the principal consuming markets in 1935. This was 0.8° Fahrenheit above normal in contrast with the corresponding average in 1933-34 of 2.5° above normal and 2.8° above normal in 1932-33. From experience over the past thirteen years, it appears that a difference of 1.0° in average summer temperatures accounts for a difference of about \$0.60 a box in the average annual f.o.b. price. The probability of cooler summers in the future than those from 1930 to 1934 (when the average was 2.6° above normal) together with the inelastic demand situation means that within the next few years and especially after 1937, the industry will probably be confronted with the alternative of accepting sharply lower prices, or find-

ing new markets for lemons in this country and abroad, or disposing of greatly increased quantities in noncommercial channels. The possibility of increased production of limes must be kept in mind as an additional possible competitive problem for the lemon growers.

OLIVES

In spite of a gradual increase in the index of urban consumers' incomes, reasonable yields will probably result in continued low prices, unless consumer demand for canned ripe olives increases materially. The significant figures compiled by the Control Board during the operation of the marketing agreement show that California consumes 45 per cent of the total consumption of canned ripe olives—about 39 cases annually per 1,000 population. The rest of the United States consumes only 4 cases annually per 1,000 population. Hence, the chief gain for the future seems to depend on increasing the consumption of canned ripe olives in the eastern states.

The total production of olives for 1936 probably will be less than for 1935, because of likely neglect of orchards and possibly less favorable weather conditions.

Bearing olive acreage has gradually been decreasing since 1928. In that year the bearing acreage was 29,047; in 1935 it was 24,396. The 1935 nonbearing acreage was 957, which is not sufficient to maintain the present bearing acreage, and it is probable, therefore, that there will be a greater downward trend before many years. It is apparent, however, that more than enough olives can be produced from this decreased acreage to supply the demand for canning purposes, and unless growers can produce a substantial part of their olives for olive-oil purposes at a profit, further plantings are not justified.

The combination of a large carryover in the hands of packers, and almost the largest production of olives in history, presented the average California olive grower in 1935 with prices and net income too low to enable him to keep his orchard in first-class condition. This has been particularly discouraging for those who had hoped to regain losses due to frosts of recent years, as well as to those who had experienced the satisfactory prices fixed under the marketing agreement.

The pack of canned ripe olives for the 1934-35 packing season was 640,446 cases; this, combined with a carryover of 115,064 cases from the 1933-34 season gave 755,510 cases available for shipment. Shipments for the 1934-35 season through September were 454,866 cases, leaving the largest carryover on record—300,644 cases. The carryover had averaged 157,947 cases for the previous nine years, with the mini-

imum of 53,828 cases at the end of the 1932-33 season. Sales for 1934-35 were about 20 per cent above those for 1933-34, and may be expected to continue to increase during the coming crop year.

During the past ten years imports from Italy have constituted about 64 per cent of all edible olive oil consumed in the United States. The uncertainty of shipments from Italy, due to the Italian-Ethiopian War, caused the prices of imported olive oil at New York to increase from \$1.55 a gallon in December, 1934, to \$1.65 a gallon in September, 1935.

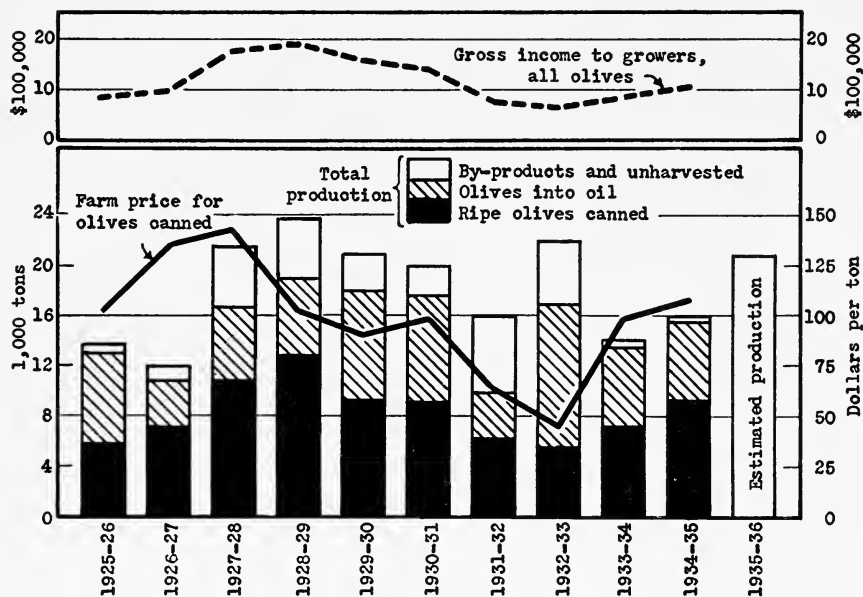


Fig. 2.—Olive production, price, and gross income. Estimated 1935 production shown is for canning olives only; the total is estimated at about 29,000 tons.

As California olive oil has averaged about 2 per cent of the total olive oil consumed in the United States, its price increases with an increase in the price of imported olive oil. Another important factor in favor of the olive-oil situation is the extremely small carryover of California olive oil into the 1935-36 season.

The production of California olive oil averaged 189,594 gallons during the seasons 1919-20 through 1933-34, with a maximum of 414,000 gallons in 1932-33 and a minimum of 66,623 gallons in 1922-23.

Figure 2 shows the changes in six important factors during the past ten years: (1) gross income to growers for all olives, (2) average price to growers for olives canned, (3) the total production of olives in California, (4) the amount of olives canned, (5) the amount of olives pressed into oil, (6) the amount used in by-products and unharvested.

ORANGES

The long-time outlook is for a continuation of the upward trend of supplies of oranges, both in this country and abroad. It seems certain that if trees now in groves in this and other countries reach full-producing capacity, orange producers may be forced to divert larger proportions of their crops to noncommercial channels. Average orange prices during the next decade are not likely to equal those of the predepression period. For 1935-36 the outlook is for smaller supplies than last year and a stronger demand situation.

Winter Oranges.—United States shipments of winter oranges in 1934-35 of 30,639,000 boxes exceeded by over 1,000,000 boxes the largest previous seasonal total on record and were about a fifth larger than the average for the preceding five years. The greater part of this increase was in California winter-orange shipments, which, in the 1934-35 season, were 17,050,000 boxes. This was 1,500,000 boxes more than the largest seasonal shipments previously recorded and more than a fifth greater than the average for 1928-29 to 1932-33. The average f.o.b. rail price received for packed fruit in California was \$1.91 a box in 1934-35 as compared with \$2.28 in 1930-31 when the former peak in shipments took place.

Acreage producing winter oranges in the four principal states is now estimated at about 260,000 acres. Of this, 90 per cent is in bearing. Since the 10 per cent not yet in bearing is somewhat larger than necessary for natural replacements, production of winter oranges is likely to continue to rise slowly in the absence of tree and crop-destroying events. Production of winter oranges and tangerines in 1935-36 was estimated on November 1 at 25,065,000 boxes, or 18 per cent less than in 1934-35. California bearing acreage of Navel and miscellaneous varieties of oranges, according to a preliminary estimate, was 97,400 in 1935, while nonbearing acreage was 4,600, or 5 per cent of the total. Since nonbearing acreage is only large enough for normal replacements, winter-orange production is likely to show no upward trend and will vary with climatic and cultural conditions. The November 1 estimate of California Navel and miscellaneous orange production for 1935-36 was 14,770,000 boxes, or 22 per cent smaller than last year.

Winter-orange shipments from Florida in 1934-35 are reported as 13,004,000 boxes, or 14 per cent larger than the average of 11,437,000 boxes from 1928-29 to 1932-33. The frost last winter killed back to the trunk about 5 per cent of the orange trees, and perhaps 30 per cent suffered loss to budwood. At present about 87 per cent of the acreage in

Florida is in bearing. In the next few years, barring frosts and storms and with average growing conditions, production of Florida oranges will increase substantially as the nonbearing acreage comes into bearing. The indicated commercial production of early and midseason oranges and tangerines in Florida for 1935-36 is 9,800,000 boxes, or 13 per cent less than in 1934-35.

In the winter season of 1934-35, Texas shipped 413,000 boxes of oranges, or over eight times as many as the 1928-29 to 1932-33 average of 49,000 boxes. About three-fifths of the Texas orange acreage is in early oranges. Of the approximately 13,000 acres of early oranges, 78 per cent are now in bearing. As the remaining 22 per cent comes into bearing, orange production will increase sharply, barring damage from natural forces. The total Texas crop for 1935-36 is estimated at 585,000 boxes, an increase of 4 per cent above the 560,000 boxes produced in 1934-35. Even this 585,000-box crop, however, was estimated on November 1 to be only 42 per cent of a full crop.

Arizona shipments in 1934-35 amounted to 64,000 boxes, the largest on record. The indicated total 1935-36 crop in that state is 270,000 boxes, or 59 per cent larger than in 1934-35. Of the 7,000 acres of Arizona oranges about 41 per cent are Navels, 41 per cent are Valencias, and 18 per cent are miscellaneous. Bearing acreage of Navels amounts to 78 per cent, and of miscellaneous 70 per cent of the totals for their respective classes. With average growing conditions Arizona's production will increase greatly.

Competition of grapefruit with winter oranges in the domestic markets will become more severe if the anticipated increase in grapefruit production over the next decade materializes. Apple production is likely to average less in the next five years than in the past five years. Competition from tomato juice in 1935-36 will reflect the largest supply of tomatoes for manufacture for any year except 1925.

The export outlook for the 1935-36 season appears to be fairly favorable. The Spanish crop will be smaller than usual which should permit a somewhat better outlet for California oranges during the winter and an early start on summer-orange exports.

From November, 1934, to April, 1935, exports of 1,588,000 boxes of oranges from the United States were 13 per cent greater than in 1933-34. The gradual decline in the importance of the Canadian market for United States winter oranges continued in 1934-35. In 1934-35 the Canadian and United Kingdom markets together took 80 per cent of our winter-orange exports as against 92 per cent on the average from 1928-29 to 1932-33.

The United Kingdom's orange imports of 11,073,000 boxes (of 70 pounds) in the winter season of 1934-35 were drawn mainly from Palestine (43 per cent) and Spain (51 per cent). Competition from Palestine oranges will increase for a period of years in the United Kingdom because of the large quantities of orange acreage in the former country which have not yet reached full-bearing age, and aggressive efforts to expand export markets. In the 1934-35 season, United States oranges were less than 1 per cent of the imports into the United Kingdom. Owing to Imperial tariff preference, imports from South Africa are likely to increase. In the older countries exporting winter oranges, such as Spain and Italy, production is not increasing rapidly, but attention is being paid to the improvement in quality of the fruit.

Summer Oranges.—Usually about 90 per cent of United States shipments originate in California, and in 1935 California shipments amounted to 19,361,000 boxes. This is an increase of more than 4,000,000 boxes (or about 28 per cent) above 1934 and the 1929-1933 average.

Preliminary estimates of the California Coöperative Crop Reporting Service for 1935 indicate that there are 137,600 acres of Valencia orange trees in the state, of which about 85 per cent are now of bearing age as compared with 82 per cent and 83 per cent, respectively, in 1933 and 1934. Total California production of Valencia oranges in 1935 was estimated at 26,400,000 boxes, with a crop reported to be 79 per cent of a full crop. The 1936 Valencia crop was reported on November 1 to be 65 per cent. The nonbearing acreage in 1935 of about 20,000 acres supports the forecast that except for damage from natural forces, production of Valencia oranges will continue to increase in California.

About 13 per cent of the acreage of Florida's late oranges was of non-bearing age in 1934. Increased competition for California summer oranges may be expected from Florida as the rising trend of production there continues. Competition of summer grapefruit is likely to become increasingly severe in the next ten years. Pear production will probably fluctuate around a rising trend for an equal period, while peach production is likely to continue around its present level.

In 1935, exports of summer oranges (including shipments to Canada) amounted to over 3,750,000 boxes. The disposition of so large a quantity of oranges in foreign markets in 1935 relieved the domestic market of part of the burden of the extremely large production.

Exports of United States summer oranges destined for Canada in 1934 were 948,000 boxes or about one-fourth less than the 1929-1933 average. In 1934, the share of our exports going to the United Kingdom was 30 per cent as compared with an average of 25 per cent in 1929-1933.

These two markets together accounted for 80 per cent of our exports in 1934 as against the five-year average of 86 per cent. Improved demand conditions are expected in both of these countries in 1936.

Imports of oranges from May to October in the United Kingdom ordinarily are only about half as large as in the winter months. However, they have shown an upward tendency in recent years. In 1934 they amounted to 6,042,000 boxes, or 13 per cent above the average from 1930 to 1933. Of this quantity in 1934, the United States supplied 12 per cent as against an average of 11 per cent from 1930 to 1933. Brazil furnished 28 per cent and South Africa 31 per cent in the same year. Production in both of these countries is increasing. Spain in 1934 supplied only 26 per cent, whereas its average for the preceding four years was 33 per cent.

The average f.o.b. price for packed oranges shipped from California from May to October, 1935, was about \$2.09 a box as compared with \$2.84 a box in 1934 and \$1.88 in 1933.

PEACHES

The downward trend of clingstone-peach production in California since about 1931 has been largely due to a major reduction in the bearing acreage. Although no material change in the number of bearing acres during the next few years may be expected, a continued downward trend in production is probable, owing to the declining productivity of a large portion of the present bearing acreage. No material change in the slightly downward trend of freestone-peach production in California is to be expected within the next few years.

The very favorable condition of the market for the canned product in the early 1920's provided the necessary stimulus for heavy plantings of peaches in California at that time. The main outlet for freestone peaches in California being the dried-peach rather than the canned-peach market, the stimulus given to the setting of freestone-peach trees was minor as compared with that of clingstones. As is often the case when the full effects of the responses to a given price situation do not appear for several years, the setting of clingstone-peach orchards in California at that time was greatly overdone. As a consequence, the production of clingstone peaches increased from an annual average of 154,000 tons during 1921-1925 to 390,800 tons between 1930 and 1934, an increase of 153 per cent.

A situation which, prior to 1927, was favorable to California clingstone-peach producers became, with the burden of the increased sup-

plies of peaches resulting from heavy plantings, coupled with a major decline in consumer buying power, very unsatisfactory. Prices paid growers for canning clingstones fell from an average of \$34 a ton in 1923-1927 to an average of \$18 a ton in 1930-1934. Moreover, 37 per cent of the production during the latter period was not harvested, because the market was unable to absorb the large supplies at prices sufficiently high to cover the costs of harvesting. Various surplus-control schemes designed to limit the supplies of clingstone peaches canned to quantities which could be sold at prices satisfactory to the industry were put into effect. Since the freestone-peach industry was not overexpanded, its difficulties were almost entirely those associated with a business depression and low consumer buying power. The excessive supplies of clingstones available for canning did affect the volume of freestones which found a market through this channel. However, even during the 1921-1925 period when the demand for peaches for canning was very great, less than 14 per cent of the freestone-peach production was canned. This proportion fell to less than 2 per cent in 1930-1934.

Just as the favorable condition of the market for canned peaches in the early 1920's stimulated heavy plantings of clingstones, the unfavorable returns received by growers in the early 1930's resulted in the removal or abandonment of a large acreage of bearing orchards and in greatly reduced plantings of young trees. The bearing acreage of clingstone peaches in California in 1934 was 32 per cent below the corresponding figure for 1928. Moreover, only 2,017 acres (3.8 per cent of the total acreage) were classified as nonbearing in 1934, which indicated very light plantings during the preceding three years.

Although no recent data concerning the age distribution of clingstone-peach trees in California are available, estimates based on a survey made in 1932 indicate that approximately 65 per cent of the present acreage of Tuscans, Early Midsummers, Late Midsummers, and Phillips north of the Tehachapi was set between 1921 and 1925. Since, under California conditions, a clingstone-peach orchard usually reaches its maximum bearing capacity at the age of nine or ten years and has a normal life of twenty years, one may infer that this large acreage now between ten and fourteen years of age is declining in productivity and will be withdrawn from production at a fairly rapid rate in from six to ten years.

As production declines and prices advance in consequence thereof, the setting of young orchards will be stimulated and the removal of trees normally discarded will be retarded. If history repeats itself, as may well be expected if growers respond to the situation which exists at the time they take action rather than to the situation which will probably

maintain when the results of their responses express themselves, the replacement of orchards now declining in productivity will be postponed too long and, when undertaken, greatly overdone. Trees set in 1936 may be expected to come into commercial production about 1940 and to reach their maximum bearing capacity about 1945. In view of this fact, increasingly large plantings of clingstone peaches in California during the next few years seem justifiable. If demand conditions for clingstone peaches on a par with those of the 1921-1930 average can be assumed, plantings equivalent to approximately 60 per cent of those of the 1921-1925 period appear justified.

The bearing acreage of freestone peaches in California in 1934 was 11 per cent below the corresponding figure for 1928. Approximately 8 per cent of the total 1934 freestone-peach acreage was classified as nonbearing. By assuming the average commercial life of a tree to be twenty years and the existent acreage to be evenly distributed according to age, plantings at the rate of 5 per cent a year would be required to maintain a given acreage. If new plantings are classified as nonbearing for three years, the normal ratio of nonbearing to total acreage would be 15 per cent. Available information indicates, however, that a large proportion of the present freestone-peach acreage in California is well advanced in age. Hence, somewhat larger-than-normal plantings are necessary as replacements, if present bearing acreages are to be maintained.

The demand situation for canned peaches during the 1934-35 season was from 15 to 20 per cent better than in 1933-34. Although shipments during the two seasons were nearly the same, the average price received by canners for their canned clingstones in 1934-35 amounted to \$2.69 a case, as compared with \$2.31 a case the preceding season. This increase in demand for canned peaches is largely accounted for by the improvement in general demand conditions, as evidenced by a rise of 7 per cent in an index of urban-consumer incomes, and by the higher prices received for competing canned fruits, particularly pears and apricots. Canned-pear prices were approximately 20 per cent higher in 1934-35 than in 1933-34 and canned-apricot prices were nearly 50 per cent higher.

All of the improvement in demand conditions for canned peaches which occurred between 1933-34 and 1934-35 took place in the domestic market. The export market for this product was less favorable in 1934-35 than in 1933-34. Although the price situation had improved, the quantity taken at those prices was very small—the smallest since 1921-22.

The output of dried peaches in California in 1934 has been estimated at 29,127 tons. This figure exceeds that for any year since 1919. The

quantity of freestone peaches which was dried was not abnormally large, but the largest quantity of clingstones ever dried in any one year was dried in 1934. It has been estimated that 48,000 tons of clingstone peaches were dried in 1934, as compared with 11,500 tons the previous year, and 3,600 tons in 1932.

Despite the large dried-peach output in 1934, prices were maintained at relatively favorable levels. Packers' quotations on dried Choice Muir peaches in 1934 (August–December) averaged 8.7 cents a pound. Comparable prices in earlier years are 7.7 cents a pound in 1933, and 4.7 cents a pound in 1932.

All improvements in the demand for dried peaches have occurred in the domestic market. The export situation has not been favorable. Exports of dried peaches in 1934–35 amounted to 3,175 tons, the smallest quantity exported in any year since 1929–30.

The main competition for California peaches shipped fresh comes from those produced in seven southern states. According to information obtained from the United States Department of Agriculture, no pronounced change in the average size of the crop produced in these states is in prospect in the next four or five years. As in California, the bearing acreage has been decreasing and the majority of the trees are now beyond the age of greatest productivity. Plantings were somewhat greater in 1935 than in 1933 and 1934. Continued planting of peach orchards in favorable locations in the South in 1936 at a rate equal to that of last year, or slightly above, is apparently necessary to maintain the present bearing capacity of orchards in the southern states.

PEARS

The sharp upward trend in United States pear production, which has resulted from the rapid growth of the Pacific Coast industry during the past thirty years, will continue for another ten years unless tree numbers are substantially reduced by disease (blight chiefly), winter injury, or neglect. Increase in normal production is, therefore, likely to be so great that for several years growers' returns may be relatively unsatisfactory whenever yields per acre are average or above, and marketing of the entire Pacific Coast output rendered difficult, even though substantial improvement in domestic demand takes place during the next few years. The prospects for late varieties of pears are more discouraging than for Bartlett's. Removal of low-yielding trees, of trees of unpopular market varieties, and of trees producing an inferior quality of fruit such as those afflicted with black end would undoubtedly

benefit both individual pear growers and the industry as a whole. However, it still appears that the industry will have to suffer several consecutive years of very low prices, like those of 1932 and 1933, before any substantial removal of acreage will take place on the Pacific Coast. What little neglect has occurred in Pacific Coast orchards in recent years has been largely due to the financial inability of growers to provide proper care.

Foreign demand for Pacific Coast pears is more uncertain than domestic, and exports are likely to increase but slowly unless present international-trade barriers are lowered considerably or an effective method devised to circumvent them. Dried-pear exports will probably continue to be drastically curtailed and the quantity dried should be correspondingly reduced as long as the stringent restriction of German currency for import purposes continues. The export outlook for fresh and canned pears is better than for dried pears, for they are chiefly marketed in the United Kingdom and Canada, where buying power is expected to improve and thereby partially offset high import duties.

October 1 estimates indicate a United States pear crop of about 514,000 tons for 1935, as compared with an average of about 556,000 tons during 1930-1934 and 564,000 tons in 1934, of which 9,000 tons were unharvested. Production of the three Pacific Coast states in 1935 of about 353,000 tons was nearly as large as the average of the past five years, constituting nearly 70 per cent of national production, or approximately the same proportion contributed by these states in recent years. Oregon and Washington together produced an average of about 160,000 tons of pears during 1930-1934, or about 29 per cent of the United States total. Their output for 1935 is estimated (October 1) at 181,000 tons, or about 35 per cent of the national total.

California production has averaged 236,000 tons during 1930-1934, or about 42 per cent of the country's total. The state crop in 1935 of 172,000 tons is the smallest in over ten years. During the four years, 1930-1933, state production averaged 237,000 tons a year, of which 200,000 tons were harvested and about 37,000 tons, or nearly 16 per cent, were unharvested. The largest crop in recent years was the 272,000 tons produced in 1930 with a yield of 4.2 tons per acre, in spite of the blight epidemic during that year. The yield in 1935 was the lowest since the World War, averaging only about 2.4 tons per acre, or over 29 per cent below the ten-year average of 3.4 tons.

The California Coöperative Crop Reporting Service estimates that approximately 70,500 acres of pears were in bearing in the state in 1935, or about 50 per cent more than ten years ago. Unofficial estimates

indicate that about 44,000 acres were in bearing in Oregon and Washington in 1934. About 5,500 acres were not yet in bearing in California in 1935 and probably nearly as many acres in Oregon and Washington combined.

Bartletts.—Of the total bearing acreage of pears on the Pacific Coast, nearly 75 per cent are Bartletts. With the major exception of the Hardy (Beurre Hardy), varieties other than Bartletts are harvested too late to compete with most California Bartletts. In California the 60,000 bearing acres of Bartletts in 1935 constituted slightly over 85 per cent of the bearing acreage of all varieties. In Oregon and Washington about 55 per cent of the bearing acreage is roughly estimated as in Bartletts. Of about 64,600 acres of Bartlett trees in California, nearly 4,400 acres were not yet in bearing in 1935, or approximately 7 per cent of the total, as compared with nearly 10 per cent of the 11,500 acres of other varieties of pears. In the Pacific Northwest the percentage of late pears still to come into bearing is also larger than for Bartletts.

Production of Bartletts on the Pacific Coast averaged roughly about 300,000 tons during the years 1928, 1930, 1931, and 1932. The very small 1935 crop was only about three-fourths as large. Crops at least as large as the indicated average are normally to be expected for the next few years, of which California may produce about two-thirds, as in recent years.

California interstate Bartlett shipments for the season through November 6, 1935, were only 3,231 cars as compared with 4,225 cars in 1934. It appears now that because of the very small 1935 pear crop, total pear shipments of all varieties from California during the 1935 season will be even less than the small movement of 4,500 cars during the 1933 shipping season.

Eastern delivered auction prices for California Bartletts averaged about \$2.34 a box in 1935, or \$0.18 less than in 1934 in spite of the fact that interstate Bartlett shipments from the state have been considerably less than in 1934. Eastern sales of Bartletts appear, therefore, to have returned California growers less than \$30.00 a ton in 1935, or about \$7.00 a ton less than in 1934. Although the Pacific Coast Bartlett crop was very small in 1935, the price of canning Bartletts was less than in 1934, chiefly because of the extraordinarily large carryover of canned pears in Pacific Coast canners' hands on June 1, 1935. California prices varied from \$25.00 to \$35.00 a ton in 1935 for No. 1 canning fruit, as compared with \$35.00 to \$45.00 in 1934. In the Pacific Northwest 1935 prices averaged between \$20.00 and \$25.00 a ton for No. 1's as compared with about \$30.00 in 1934.

The 1935 Pacific Coast output of canned Bartletts is roughly estimated at about 1,000,000 cases less than the 5,500,000 cases packed in 1934. Considerably over 1,250,000 cases of pears are estimated as sold and unsold in the hands of canners on June 1, 1935. Therefore, about 5,750,000 cases of canned Bartletts were probably available for the 1935 marketing season, or about the same quantity as were available for the 1934 season, which was the largest on record. Shipments during the 1933 season were 4,533,000 cases and probably about as many cases were shipped by canners during the season beginning June 1, 1934. Exports for the 1934 season were about 1,500,000 cases, or approximately one-third of total shipments, and about the same as the average quantity exported during the preceding seven years.

Pacific Coast canners' f.o.b. selling price of canned Bartletts during the 1934 season is roughly estimated to have averaged about \$0.25 a dozen more than the actual average of \$1.32 for the 1933 season. Opening quotations on choice 2½ cans on the 1935 pack of \$1.75 a dozen were about \$0.10 lower than the opening price in 1934. However, prices were weak during the 1934 season, published quotations falling from \$1.85 in August, 1934, to about \$1.65 in May, 1935.

Late Varieties.—Prospects for late varieties of pears appear to be more discouraging than for Bartletts, for normal production on the Pacific Coast will probably increase at a faster rate than Bartlett production during the next few years, and there seem to be greater difficulties involved in marketing late varieties and increasing the demand for them than in the case of Bartletts. Production has increased so rapidly that rail shipments of late pears from the Pacific Coast are now normally about four times as great as they were just after the War and, on the whole, larger than the consumptive capacity of domestic and foreign markets in recent years at prices that would return packing, transportation, storage, and marketing costs. Delivered auction prices of late varieties of California pears during 1930–1934 indicate how unremunerative these varieties have been to growers. The average prices were as follows: Anjou, \$2.32 a box; Comice, \$2.27; Bosc (Beurre Bosc) and Hardy, \$2.10; Winter Nelis, \$2.03; and Clairgeau (Beurre Clairgeau), \$1.87, as compared with \$2.38 for Bartletts. Unlike California shipping Bartletts, most of the state's late pears are shipped for fresh consumption and at a time that brings them into direct competition with the crop of other states.

PLUMS

The trend of plum production in both California and the Pacific Northwest, the main plum-producing areas of the United States, is slightly downward. With average yields, the annual production of plums (including fresh prunes) on the Pacific Coast during the next few years will be in the neighborhood of 120,000 tons. The production in California may be expected to approximate 60,000 tons.

During the five-year period, 1930-1934, the average annual harvested production of plums (including fresh prunes) on the Pacific Coast amounted to 125,700 tons. The Pacific Northwest harvested annually an average of 63,700 tons, canned 11,500 tons (18.1 per cent), and shipped fresh 52,200 tons (81.9 per cent). The corresponding figures for California are 62,000 tons harvested, 1,800 tons (2.9 per cent) canned, and 60,200 tons (97.1 per cent) shipped fresh.

The California Coöperative Crop Reporting Service estimates that 32,365 acres of plums were of bearing age in California in 1935 and that an additional 1,332 acres were nonbearing. The nonbearing acreage is the smallest reported for the state in recent years. It represents less than 4 per cent of the total acreage.

The estimated production of plums in California in 1935 amounted to 46,000 tons, a crop 26 per cent below the average of the preceding five years. The average yield per acre was very low—the lowest since 1929. Interstate shipments from California in 1935 amounted to 2,810 cars. Comparable figures for earlier years are 3,949 cars in 1934, 3,362 cars in 1933, and 3,894 cars in 1932. It has been estimated that, despite the small crop, the quantity of plums canned in California in 1935 approximated the 1934 figure of 1,730 tons.

Preliminary estimates indicate that the average price received on the New York auction market in 1935 for eleven leading varieties of plums shipped from California was \$1.60 a crate as compared with \$1.38 a crate in 1934, an increase in price of nearly 16 per cent. Since it costs in the neighborhood of \$0.64 a crate to ship plums from California to New York, the average f.o.b. California price of plums selling at \$1.60 a crate in New York in 1935 was \$0.96 a crate. This figure is nearly 30 per cent greater than the corresponding f.o.b. price of \$0.74 a crate reported for the 1934 shipping season.

Since shipments of fresh plums to eastern markets from other states do not usually reach those markets in large volume until the California shipping season has passed, California fresh plums compete very little with those produced elsewhere in the United States. On the average,

during the ten-year period, 1925–1934, over 50 per cent of the season's earlot shipments of plums from California were made prior to July 1. The bulk of the movement from other states occurred in August. Although the 1935 California shipping season was very late, the competition received from plums produced in other states remained of little consequence because the season was late in those states also.

The 1934 canned pack of plums in California amounted to 113,000 cases. A pack of about the same size has been estimated for 1935. The Pacific Northwest, which, during the period 1930–1934, canned between six and seven times as many plums (including fresh prunes) as California—hence dominating the market—has an estimated pack in excess of 1,000,000 cases for the 1935 season. This is the largest pack on record.

The latest available quotations of California canners on canned plums indicate that, barring a slump later in the season, prices received in 1935–36 will closely approximate those received in 1934–35. The quotation published in the *California Fruit News* on November 2, 1935, for No. 2½ Choice plums, f.o.b. California, was “\$1.55@ \$1.65” a dozen cans—the same quotation as was reported throughout the 1934–35 season.

PRUNES

Even though domestic demand improves considerably, prune prices to California growers may be relatively low during the next few years, since several foreign markets, particularly Germany, are unfavorable to California exports and world production may average 10 to 15 per cent greater than the 1932–1934 average of approximately 230,000 tons. A large part of the expected increase in production will come from California, which usually produces about 75 per cent of the world output. The gradual decline in bearing prune acreage in prospect in California during the next few years will probably be more than counterbalanced by higher yields per acre resulting from increases in the productivity of the large number of younger bearing trees and from the upward swing in rainfall expected to take place.⁴ Production in Yugoslavia, our most important foreign competitor, has shown a slight upward trend since 1931.

World commercial dried-prune production was considerably below normal during 1932–1934 because California yields per acre were unusually low. State production was only about 174,000 tons a year, with yields averaging slightly over 1 ton per bearing acre. With an increasing proportion of trees approaching full-bearing age and the forecasted

⁴ Forecast by the Scripps Institution of Oceanography.

increase in state rainfall, yields might improve sufficiently to produce an average of around 200,000 tons of prunes during the next few years. During 1927-1931, with California bearing acreage just about what it is likely to be for the next few years, yields averaged nearly 1.25 tons per acre and production over 207,000 tons a year. The bearing prune orchards in California rose from about 104,000 acres in 1919 to a peak of about 171,000 in 1930. It is estimated as 168,000 acres in 1935. About 5 per cent of the total acreage or 8,700 acres is not yet in bearing. A very large majority of the bearing acreage is over thirteen years of age and should, therefore, normally produce heavy yields.

The bearing acreage of prunes has started to decline in Oregon and Washington, which states produce an average of about 10 per cent of the world dried-prune crop, and it may decrease at a more rapid rate than in California during the next few years. The industry in the Pacific Northwest is handicapped by rather violent fluctuations in yields per acre resulting from changing weather conditions. Moreover, prices of the Italian prunes, which are largely grown there, are usually lower than prices of the corresponding size of French prunes in California. The October 1, 1935, estimate of dried-prune production in the Pacific Northwest was 37,800 tons. Average production during the preceding five years was about 25,000 tons a year which appears to be somewhat less than one may expect during the next few years if weather conditions are near normal.

Commercial production of dried prunes in Europe during 1932-1934 averaged about 35,000 tons, or about 15 per cent of the world total normally to be expected. A slightly larger average output is expected from these countries within the next few years, since a gradual upward trend is anticipated in Yugoslavia. The Yugoslavian output averaged about 27,000 tons in recent years, or over 75 per cent of the European total. Bulgaria and Rumania only recently have exported prunes on a commercial scale, with an average of about 2,400 tons in 1932-1934. Their output is not expected to become of any particular commercial consequence. The prune acreage in France is thought to be fairly stationary, but weather conditions cause violent fluctuations in yields. For example, France produced 17,000 tons of dried prunes in 1930 and 2,500 tons in 1932. The average of around 7,000 tons in recent years is not likely to change much during the next few years unless climatic conditions differ greatly from those of recent years.

Preliminary estimates indicate a 1935 commercial dried-prune crop of approximately 300,000 tons, or about 70,000 tons more than average world production during the preceding three years. It appears, there-

fore, that total world supplies of about 335,000 tons of prunes were in sight on September 1, 1935, carryover included. This supply compares with average annual world production and consumption of about 230,000 tons during the past three marketing seasons and maximum consumption of about 275,000 tons in 1927 when both foreign and domestic demand were much better than at present. Even with considerable diversion of standard California prunes into relief channels and of off-grade fruit into by-products, the problem of marketing the remainder of the tonnage appears to be a difficult one and indicates why prices to California growers are the lowest since 1932. Prices paid growers for the 1935 French prune crop and packer quotations to the trade are both more than a cent a pound lower than they were a year ago.

United States shipments of prunes during each of the past two marketing seasons have been about 190,000 tons (unprocessed weight). Domestic consumption appears to have been about 10,000 tons greater during the 1934 season than the preceding year. Exports of prunes (excluding those in fruit salad), however, decreased from about 97,000 tons (net packed weight) in the year beginning September 1, 1933, to approximately 80,000 tons in 1934. This decline was caused by the virtual closing of the German market to the United States. Exports from this country to Germany fell from 27,700 tons in the 1933 season to about 5,200 tons in 1934. Exports to countries other than Germany actually rose from about 69,200 tons in the 1933 season to 73,800 in 1934.

Considerable improvement in domestic demand and consumption of prunes is anticipated for the next few years as consumer purchasing power increases. Although some slight increase in total exports may occur as economic conditions abroad improve, no substantial increase is expected until the high trade barriers in the most important foreign markets are lowered or effective methods found to circumvent them. Drastic changes in Germany's foreign trade policy will have to be brought about before it will again become an important outlet for our prunes.

SWEET CHERRIES

Anticipated improvement in the demand for sweet cherries in the United States during the next few years will probably be largely counteracted by a continued upward trend in production. Growers' returns are likely to be relatively low whenever yields per acre are average or above, and marketing of the entire sweet-cherry output in such years may be difficult. Increasing average production for several years is indicated by the fact that about 38 per cent of the cherry trees in the

dominant western sweet-cherry-producing states were not yet of bearing age in 1930. Although bearing acreage is now approaching a peak, the increasing yields from the younger trees on the Pacific Coast, as they grow older, will cause production to continue to increase for several years unless low prices result in considerable abandonment of acreage or unfavorable weather and disease lower yields greatly.

With yields per acre near normal the present bearing acreage of sweet cherries in California, Oregon, Washington, and Idaho will produce crops as large as those of 1932 and 1933 which averaged over 54,000 tons a year and were so low in price that a considerable tonnage was not harvested. The small crops of 1934 and 1935 averaged less than 44,000 tons because yields per acre were about 15 per cent below usual expectations. The California crop was particularly small during the past two years with yields per acre at least 25 per cent less than the average for 1923-1932. Abnormally small sweet-cherry crops on the Pacific Coast largely account for the improvement in prices received by growers during 1934 and 1935.

Although the 15,600 bearing acres of cherries in California is nearly 80 per cent greater than those of sixteen years ago, the peak has not yet been reached, for nearly 2,400 acres, or about 13 per cent of the 1935 total, are estimated as not yet in bearing. The peak of state production to date was the 24,900-ton crop of 1933. Yields per bearing acre averaged about 1.5 tons during 1923-1932 and with such yields the present bearing acreage in California would produce at least 23,000 tons of cherries.

California cherries usually ripen so early that they compete but little with either fresh cherry shipments from other states or other fresh fruit shipments. Most of the sweet cherries eaten fresh are black varieties, chiefly Black Tartarians and Bings. The trend of fresh consumption of California cherries has been gradually upward during the past fifteen years, although actual consumption fell much below the upward trend lines in 1934 and 1935 largely because of the unusually short state crops.

Considerably more than half of California sweet cherries consumed fresh are shipped to eastern markets. The peak of cherry shipments from California to date was reached in 1931 with a total of 1,034 cars, the equivalent of about 8,300 tons, or over 41 per cent of the harvested production. Interstate shipments averaged 786 cars in 1932-1934, but were only about 500 cars in 1935. Interstate shipments of 900 to 1,000 cars a year from average California crops may occur as demand improves. The small shipments from California in 1935 and some improve-

ment in demand resulted in New York auction prices high enough to return growers an equivalent f.o.b. price of about 9 cents a pound in 1935 as compared with only about 5 cents in 1934.

Unlike our black shipping cherries, California Royal Anns (Napoleon) lose most of the advantage of early ripening since the canned and barreled products for which they are primarily used actively compete with the Northwest pack in the national market throughout the year. The trend of the combined barreled and canned pack has risen about as rapidly on the Pacific Coast as has total production during the last fifteen years. The marked slump since the depression in the canned pack of sweet cherries, a large majority of which are Royal Anns, has been largely offset by the rapid growth of the barreled pack, practically all of which are Royal Anns. About 35 per cent of the Pacific Coast cherry crop and about 40 per cent of the California crop is now canned and barreled. In California, however, where very few black cherries are canned, these figures represent roughly the proportion of Royal Anns to total cherry production in recent years.

Demand for canned cherries, which are a luxury, was so small during the depression as compared with the increased demand for domestic barreled maraschino stock that an average of only about 10,000 tons a year was so utilized in 1931-1934 or about one-fifth of the production of all cherries on the Pacific Coast as compared with about 15,000 tons or about one-third of the crop during the years 1925-1930. California packed half in the latter period, utilizing about 18 per cent of the harvested crop in this way. The 1935 Pacific Coast canned pack of sweet cherries is estimated by canners as less than the 1934 pack of about 460,000 cases.

The decline in the canned pack has come about in spite of drastic cuts in both grower and consumer prices. The price paid growers for No. 1 Royal Ann cherries from 1921 to 1930 averaged about 8.3 cents a pound, as compared with about 4 cents during 1931-1934, and a low of 3 cents in 1932. Small crops helped to offset depressed demand in 1934 and 1935 and were largely responsible for a grower price of about 5 cents a pound in 1934 and of somewhat better than 6 cents in 1935. Canners' quotations on Choice Royal Anns per dozen No. 2½ cans, which averaged only about \$1.80 during the 1932-33 marketing season and about \$1.75 in 1933-34, rose to about \$2.20 in 1934-35. Opening quotations on the 1935 pack were about \$2.40.

Barreled Pack.—As production of sweet cherries on the Pacific Coast has risen since the World War, the quantity barreled in brine, which is used for making maraschino cherries, has risen at even a more rapid

rate. Increased utilization in this form has also been caused by the big decline in imports of such cherries from foreign countries in recent years which has resulted from the high import duty imposed since June, 1930. During the years 1925-1927, the barreled pack was roughly estimated by the trade to have been about 2,000 tons a year, or only about 6 per cent of production. The annual average has risen to over 8,000 tons or about 16 per cent of Pacific Coast production in recent years. Expansion of the domestic tonnage of cherries utilized for brining purposes has fortunately increased the demand for the Royal Ann. With the protection from foreign competition the domestic sweet-cherry industry now enjoys, the barreled cherry industry may be expected to continue utilizing a substantial part of the Royal Ann crop.

WALNUTS

The trend of walnut production continues sharply upward in both California and Oregon. Young plantings are much more than sufficient to replace the acreage which would normally be pulled out. New plantings do not appear to be justified except under definitely proved conditions of low cost per pound for high-quality walnuts. Producers who have been unable to make a profit during the past several years on mature orchards may find it advantageous to select alternative crops for the land now devoted to walnuts.

The trend of walnut production in the United States is clearly demonstrated by the following five-year averages of orchard-run yields: 1916-1920, 20,100 tons; 1921-1925, 26,300 tons; 1926-1930, 32,900 tons; 1931-1935, 42,200 tons. The annual rate of increase during that entire period has been 1,470 tons. It, therefore, appears probable that with normal yields the average annual total production during the next five years will be between 45,000 and 50,000 tons. The estimated production for 1935 is 53,600 tons which is the largest on record and is about 40 per cent above the five-year average for 1930-1934.

The total United States walnut acreage has fluctuated very little since 1930. Bearing acreage, however, has increased steadily along with increased production. In 1925 the bearing acreage in California amounted to 69,629 and in 1935 to 122,514. With 18,175 acres of nonbearing walnut trees in California the peak of production is not likely to be reached until sometime after 1940. The number of nonbearing trees in Oregon and Washington indicates a greater percentage increase there than in California.

Imports of unshelled walnuts since 1932 have been negligible. Imports of shelled walnuts during the crop year 1934-35 will probably be less

than 3,000 tons. The European crop for 1935 is estimated at approximately 77,000 tons, which is 13 per cent below the six-year 1929–1934 average. No definite change in the trend of production seems apparent either in European countries or in China.

The apparent annual total consumption of walnuts on an unshelled basis in the United States during the period 1930–31 to 1934–35 has been approximately 44,431 tons divided as follows: merchantable walnuts (unshelled) including imports, 26,176 tons; shelled walnuts, including

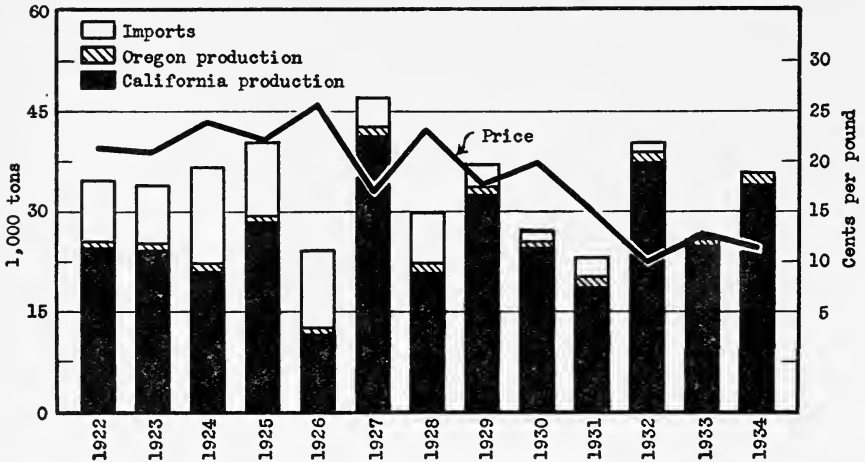


Fig. 3.—United States production (mainly in California and Oregon) and imports of unshelled walnuts and average price paid local associations.

imports (shelled weight), 7,302 tons which is equivalent to 18,255 tons on an unshelled basis. Exports during the past two years ending September 30, 1935, aided by the Federal Marketing Agreement under the Agricultural Adjustment Act, have averaged 6,875 tons. These exports have generally been offset by imports of shelled walnuts.

It appears evident from the information available on probable production and consumption during the past few years that prices of walnuts must be low enough to increase domestic consumption, unless the industry can maintain some equitable plan to control its surplus production.

ALFALFA

United States hay supplies in the crop year 1935–36 will provide nearly 2 per cent more tonnage per hay-consuming animal unit than on the average from 1920 to 1929. The extensive reduction in national cattle numbers because of the drought is now complete and an upswing in the cattle cycle is indicated. Heavy feeding is likely to be continued in view

of the prospective prices for dairy products and beef. The increase in cattle numbers in California will be relatively smaller than in areas affected more seriously by the drought.

Acreage of California alfalfa harvested in 1935 (707,000 acres) was 5 per cent smaller than in 1934 and 13 per cent less than in the average for the preceding five years. The yield (3.8 tons per acre) was 12 per cent larger than that of 1934 and was slightly above the average. Consequently, the production of 2,687,000 tons was 6 per cent larger than in 1934, although it was 7 per cent below the five-year average. If the increased crop in Arizona is taken into account, the total production for the two states was 3,074,000 tons, or 4 per cent less than the five-year average. However, the total crop of all tame hay for both states in 1935 was 6 per cent larger than the five-year average. This is due to increased crops of grain and other tame hay. For California alone the grain-hay production in 1935 was 35 per cent greater than the five-year average, while that of other tame hay was 37 per cent above the five-year average.

After going above \$17.00 a ton in September-November, 1934, U. S. No. 1 alfalfa hay at Los Angeles declined in price so that the average for the 1934-35 crop year was \$15.35 a ton. Meanwhile, alfalfa at San Francisco rose to a peak of \$16.25 a ton in November and December and had a crop-year average of \$14.40 a ton. For both markets these prices were the highest since 1931-32. From April to October, 1935, the average price of U. S. No. 1 at Los Angeles was \$14.43 a ton and at San Francisco, \$13.74.

For the United States as a whole, alfalfa-hay prices in 1934-35 were the highest since the World War except for a few months in the latter part of 1928-29. A wide differential between hay prices in Kansas City and California attracted exceptionally large shipments of alfalfa hay from California to the Midwest. In the summer of 1935 this wide differential disappeared because of a United States crop of alfalfa hay 19 per cent greater than the 1928-1932 average. Moreover, the supply of 89,037,000 tons of all types of hay is 11 per cent above the corresponding average. The possibility of large shipments out of California in 1935-36 does not exist. The quality of the hay crop in the Midwest, however, is below that for recent years and there will be a considerable deficiency in hay supplies in certain parts of Texas, Oklahoma, Kansas, Colorado, Nebraska, and New Mexico where the drought continued during 1935. Imports of hay in 1935-36 are expected to be negligible.

The trend toward increased acreage of pasture and hay and forage crops will probably continue. The 1936 crop-adjustment contracts of the Agricultural Adjustment Administration encourage using the land

that is retired from the production of basic-commodity crops under contract for the planting of soil-improving or erosion-preventing crops, and for pasture, fallow, forest trees, etc. The increase in the use of improved pastures and properly cured roughage crops is being encouraged in order to achieve more economical production of meat, milk, and other animal products. With ranges and pastures now in better-than-average conditions in the United States, they should furnish a normal supply of feed at the beginning of the 1936 season, and throughout the year if normal weather occurs during the summer.

Though no material expansion in dairy-cow numbers is likely in California in 1936, continued heavy feeding of alfalfa appears probable. Competition facing alfalfa growers will come primarily from pasture (should the condition of the latter continue good through the winter) and from the larger-than-usual supplies of other tame hay. To a certain extent, however, alfalfa-feeding practices and alfalfa prices are being affected by the larger supplies of barley, mill feeds, and protein concentrates available in California this year. Fish meal and beet-pulp production in this state will probably be smaller in 1935-36 than last year. Production of cottonseed meal and cake in California will be somewhat larger than in 1934-35, in addition to which there is the possibility of importation of cottonseed meal and cake. Possible crushing of California-grown flaxseed would treble the amount of linseed meal and cake available. Since a shortage of fats and oils still exists in the United States, the importation of copra, sesame seed, kapok seed, and other oil-bearing seeds is likely to continue in larger-than-usual quantities, barring the imposition of higher tariffs on them.

ASPARAGUS

Under normal weather conditions, the production of asparagus in 1936 will be the smallest in recent years. However, the large 1935 plantings and the extremely large intended plantings in 1936 indicate a heavy production after 1937, unless many of the old beds are plowed out. If these old beds remain and if demand conditions do not improve beyond reasonable expectations, prices will probably be at relatively low levels after 1936. Prices for fresh asparagus were higher during the California shipping season in 1935 than in 1934. This may have been largely due to the small volume of shipments. Total shipments during the first 6 months of 1935 from all states amounted to 2,142 cars, as compared with 3,517 cars during the same period in 1934.

Production of asparagus in California has increased from 4,300,000 crates (24-pound crates) in 1924 to a maximum of 7,834,000 crates

in 1930. Since 1930 production has fluctuated between 6,342,000 and 7,645,000 crates. California has produced practically all of the regular canning asparagus in the United States since 1929. Also during the last six years, California has produced about half of the total United States production for the fresh market.

The asparagus acreage in California increased from 29,690 in 1924 to a maximum of 76,550 in 1933, but decreased to 70,970 acres in 1935. A recent survey of the Delta district made by the Cannery League of California and the California Asparagus Growers Association gives 61,302 acres to cut in 1936 as compared with 70,900 acres in 1933. It also shows that growers intend to plant about 14,000 acres, by far the largest plantings in history. The last plantings were limited by the supply of seed beds; but this is not expected to be a limiting factor in 1936. There has been a significant decrease in the yield per acre in California from the annual average of 128 crates per acre in 1924-1926 to an annual average of 95 crates per acre in 1932-1934; on the other hand, the yield per acre in the rest of the United States has increased from an annual average of 58 crates per acre in 1924-1926 to 71 crates per acre in 1932-1934. With the likelihood of a considerable plowing out of old beds and planting of new beds in 1936, yields per acre can be expected to increase by 1938 and 1939.

Carlot shipments of fresh asparagus from shipping points in California were slow during the early weeks of the 1935 shipping season. During February and March of 1935 only 241 cars were shipped—the lowest amount for these months since 1929. The lateness of this season resulted in most of California's shipments competing for the market simultaneously with South Carolina and Georgia in March and April. The average jobbing price of California fresh asparagus at New York for 1935 was \$3.17 a crate; this is higher than the previous three-year average of \$2.76 a crate, but slightly lower than the previous five-year average of \$3.29 a crate.

A marketing agreement for canning asparagus grown in California became effective April 3, 1935. The chief features of the agreement were provisions for limitation of total pack and the establishment of grades for canning asparagus. Partial limitation of the pack is brought about by permitting only the three highest grades of asparagus to be packed. The pack for 1935-36 of 2,238,000 cases plus the carryover from the previous season of 210,000 cases, gave a total of 2,448,000 cases available for consumption. The consumption of asparagus in 1933-34 was 2,313,000 cases (the highest amount consumed since 1929-30) but it dropped to 1,980,000 cases in 1934-35. Prices for large white asparagus in No.

2½ tins were from 11 to 20 cents higher in 1935 than 1934; they were higher than the previous three-year average, but lower than the average for the preceding five years. Prices to growers are shown in figure 4.

Exports of canned asparagus reached their peak in 1929 with 507,679 cases. The amount exported decreased to a minimum of 241,782 cases in 1932. The total exports were 349,438 cases and 407,127 cases in 1933

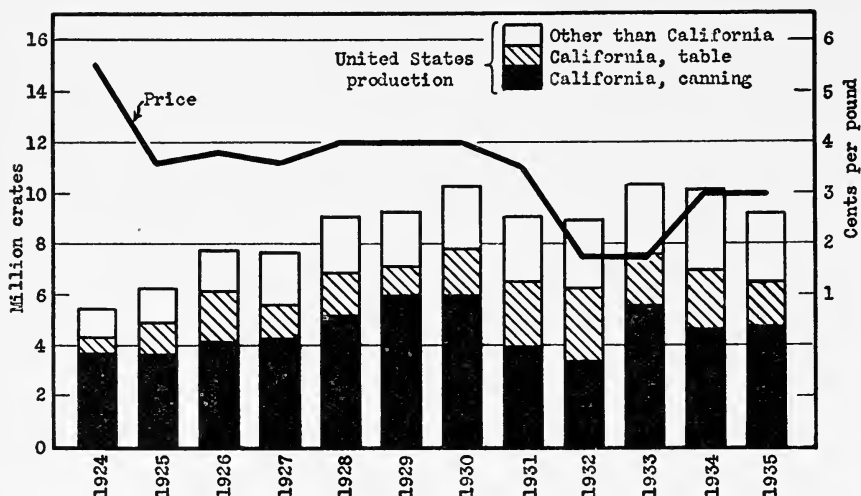


Fig. 4.—United States and California production of asparagus and price to California growers for canning asparagus.

and 1934, respectively. Over a period of years, France has been the largest importer of California canned asparagus followed by the United Kingdom, Japan, and Switzerland. The only decided trend for an individual country has been Canada's steady decrease of imports of California canned asparagus from 46,453 cases in 1929 to 8,074 cases in 1933. Australia also had a decrease from 59,406 cases in 1929 to 160 cases in 1931; but her imports increased again to 8,117 cases in 1933.

BARLEY

The United States barley production in 1935 was estimated on November 1 at 6,968,000 tons, which is 145 per cent larger than the drouth-reduced 1934 crop and is 21 per cent larger than average for the preceding four years. For the 1935 crop the acreage harvested is 9 per cent and the yield per acre is 11 per cent larger than the corresponding averages. In California, with an acreage 15 per cent and a yield 13 per cent larger than the 1930–1933 average, the 1935 barley crop is about 880,000

tons. Even with the very small carryover of 56,000 tons in this state, the 1935-36 supply of about 936,000 tons exceeds the average of recent years by 133,000 tons. With trade estimates of 45,000 tons for domestic malting, 170,000 tons for export, 40,000 tons shipped elsewhere in the United States, 50,000 tons for seed, and 480,000 tons for feed, the carry-over at the end of the year would be around 150,000 tons.

The United States production of corn, oats, barley, and grain sorghums in 1935 was estimated on November 1 at 90,836,000 tons, as compared with 50,781,000 tons harvested in 1934. This total is about 10 per cent smaller than the 1928-1932 average. The 1935-36 supply of feed grains, including carryover from previous years, probable quantities of wheat and rye that may be fed to livestock, and the prospective supplies of by-product feeds, amounts to about 106,000,000 tons as compared with a five-year average of 120,000,000 tons. Because livestock numbers are still below normal, the supply of feed will give each grain-consuming animal unit, including poultry, about the same quantity in the current crop year as on the average from 1928-29 to 1932-33. Average yields on the prospective acreage of feed grains for harvest in 1936 would give a production about 5 per cent larger than in 1935, but such production would still be below the 1928-1932 average. The increase in the production of grain-consuming livestock will probably be as great as this increase in feed production, or greater.

With the large barley crop east of the Rockies, California barley shipments in that direction this year will be much less than was the case in 1934-35. The unusually large eastward shipments in 1934-35—185,000 tons—were the chief factor in the high total of 281,000 tons of California barley shipped out of the state. This amounted to 40 per cent of the California supply used in that period. Probably because of the high price, feed use was only 318,000 tons, or considerably smaller than average. California malting use accounted for about 47,000 tons—an increase of 17,000 tons over the preceding year.

Requirements of barley malt in the United States in 1935-36 may be about 70,000,000 bushels (of 34 pounds) or 6,000,000 bushels more than in 1934-35. Estimated production of barley malt in the United States in 1934-35 was 57,000,000 bushels. Brewers used 50,757,000 bushels in the year ending with June, 1935, as compared with 42,147,000 bushels in the preceding year. Distillers used 4,947,000 bushels of malt in 1934-35 as against 4,556,000 bushels in 1933-34. California breweries' sales shared in this growth by increasing from 61,731,000 gallons in the year ending September, 1934, to about 66,700,000 gallons in the year ending September, 1935.

Generally plentiful feed supplies, good pasture conditions, and the expected improved demand for livestock products throughout the country will probably result in heavier feeding and increased cattle numbers. In California this will be less apparent than in areas seriously affected by the drought.

The large barley supply in California for the current season must compete with abundant and low-priced feeds. California pasture and range conditions on November 1 were exceptionally good. Hay production in the state is slightly above average for recent years, but the alfalfa crop is smaller than average. Wheat, grain sorghums, oats, and corn are all much more abundant in California than has been the case in recent years. Fish meal, beet pulp, and alfalfa meal will probably be produced here in smaller quantities in 1935-36 than in 1934-35. Larger quantities of cottonseed meal and linseed meal than last year will probably be produced in California next year. Supplies of other oil meal and cake from local processing of oil-bearing material will be relatively large and available at comparatively low prices.

Present price relations favor the feeding of barley as against some alternative feeds to a greater extent than is usually the case. Thus far in the current crop year feed-barley prices in San Francisco have averaged 62 per cent of wheat prices, 60 per cent of corn prices, and 63 per cent of sacked milo prices as compared with 81 per cent, 61 per cent, and 76 per cent, respectively in 1934-35. Feed barley is now cheaper in relation to wheat, corn, sacked milo, and some feed concentrates than it was on the average for 1921 to 1933. Prices of feed declined from a scarcity level in the winter months of 1934-35 to a basis of plenty in 1935-36. Feed barley in San Francisco averaged \$1.19 per hundredweight in 1934-35, the highest since 1929-30. For the first 5 months of the present year the corresponding average was \$0.89.

COTTON

The world supply of all cotton for the 1935-36 season is expected to be about the same as that for the preceding season and about 11 per cent larger than the average for the ten years ending 1932-33. The smaller world carryover of all cotton at the beginning of the current season will offset the prospective increase in world production. The world supply of American cotton is expected to be smaller than that of last season and also smaller than the ten-year average, while the indicated supply of foreign growths is about the same as in 1934-35, but about 27 per cent larger than the ten-year average. The outlook with respect to the

supply of American cotton in 1936-37 depends very largely upon the 1936 cotton-adjustment program of the Agricultural Adjustment Administration. Without restrictions domestic cotton acreage in 1936 would undoubtedly show a very marked increase, and with average yields the domestic crop and the world supply of American cotton would probably materially increase, since present indications point to a comparatively small decrease in the world carryover of American cotton on August 1, 1936. As yet, no announcement has been made relative to the 1936 acreage-adjustment program.

The world mill consumption of all cotton for the year ending July 31, 1935, was slightly larger than that of the previous season and the largest since 1928-29. Total consumption of American cotton in 1934-35, however, declined from that of 1933-34, and with the exception of 1930-31 was the smallest for eleven years. World mill consumption of foreign cotton increased about 2,300,000 bales last season to a new high level and exceeded that of American by 1,000,000 bales.

The world supply of American cotton for the current season is now indicated to be about 20,100,000 bales, which is slightly smaller than that in 1934-35 and 300,000 bales less than the average for the ten years ending 1932-33. The world carryover of American cotton at the beginning of the current season, which amounted to about 9,000,000 bales, was 15 per cent less than the carryover on hand a year ago. The indicated 1935 domestic crop on November 1, was 11,141,000 bales, or 16 per cent greater than the 1934 crop but 23 per cent smaller than the average for 1923-24 to 1932-33. Production of California cotton in 1935 totaled 235,000 bales, or 12 per cent greater than the average of 209,000 bales for the preceding five years.

The indicated area of United States cotton for harvest in 1935 of 28,652,000 acres is about 6 per cent greater than a year earlier, and the larger crop is due primarily to a material increase in yield. In California the 1935 acreage harvested was about the same as in 1934, and the fact that the crop was 9 per cent smaller than in 1934 was due to a 1935 yield 10 per cent smaller than a year ago.

Present indications are that the world supply of foreign cotton in 1935-36 will be about 19,450,000 bales, or about the same as the record supply of 1934-35 and 27 per cent larger than the ten-year average ending 1932-33. The current season's supply is the result of a marked reduction in carryover at the beginning of the year and a considerable increase in production. The carryover on August 1 amounted to 4,600,000 bales, or 800,000 bales smaller than for the previous year. Foreign production in 1935-36 will probably be about 850,000 bales greater

than the record production of last season. Such an increase would give a total foreign crop of approximately 14,850,000 bales, which is considerably greater than the production in any other year.

The trend in domestic cotton prices was upward throughout 1933-34, but after reaching a peak in early August, 1934, they declined during 1934-35. The weighted-average price received by producers last season amounted to about 12.4 cents for cotton of various qualities as compared with 10.2 cents the previous season and 5.7 cents in 1931-32. In addition, coöperating cotton producers received cotton rental and parity payments in 1934-35 equivalent to about 3.2 cents a pound. This, plus the weighted-average farm price, gave coöperating producers a total return in 1934-35 equivalent to about 15.6 cents a pound.

DRY BEANS

The prospect this year is for an excessive supply of all types of beans produced in this country. Even if the nominal carryover from the past season is disregarded, the United States crop as estimated on November 1 will itself be larger than the production plus carryover in any of the past three years. Since the supplies of competitive food products are, generally speaking, larger this year than last, there is no particularly buoyant influence on bean consumption or price to be looked for in that direction. If the United States crop bears out the estimate, it seems probable that the surplus condition existing will be reflected in lower prices, fewer imports, and a stimulation of the export movement. A reduction of 15 per cent in the total acreage planted in 1936 from that of 1935 would, with average yields and average abandonment, result in a new-crop supply more closely in line with normal requirements. The adjustment in acreage desirable will vary with varieties.

The bean acreage to be harvested in the United States this year is 46 per cent greater than in 1934 and 21 per cent greater than the 1933 acreage harvested. The production estimate for the country on November 1 was 13,806,000 bags which is 21 per cent greater than the average production for 1926 to 1933. With a carryover estimated at about 1,150,000 bags, the United States supply for 1935-36 is almost 15,000,000 bags, or 10 per cent greater than the largest consumption previously estimated which occurred in 1929. Most of the indicated increase in production in 1935 over 1934 is in Michigan, Colorado, and New Mexico. In Michigan the total production in 1935 was estimated at 4,814,000 bags, mostly Pea beans, or 43 per cent above the 3,377,000 bag crop of 1934, and 38 per cent greater than the 1930-1933 average. The total production of Great Northern beans in Montana, Idaho, Wyoming, and Nebraska is esti-

mated to be 1,450,000 bags as compared with 1,140,000 bags in 1934. The total production in the Pinto-bean states in 1935 is estimated to be about 1,770,000 bags as against 385,000 bags in 1934 and the average of 1,860,000 bags for the four preceding years. In the past year imports amounted to 348,000 bags, or 3 per cent of the quantity consumed. These were the largest imports since 1930-31 and were made possible only by the short crop and high prices of some varieties. Exports were very small and shipments to Puerto Rico were 278,000 bags, or 7 per cent below the average of the preceding four years. The net result was that movement to and from the continental United States practically balanced.

Carryover of beans in California at the first of the 1935-36 season amounted to 413,000 bags, over half of which was in baby limas and Small Whites. The total carryover was 11 per cent of the 1934 crop of 3,752,000 bags, or an average-sized carryover. With a 1935 crop in California estimated on November 1 of 3,751,000, there is a supply of about 4,164,000 bags, or the second largest on record and 9 per cent above the 1930-31 to 1933-34 average.

The average-sized supply of Large limas in 1934-35 was marketed, except for the carryover of 87,000 bags (or 9 per cent of the 1934 crop), at an average f.o.b. rail price of \$5.57 a bag. This was the highest year's average since 1930-31. With a crop estimated at 957,000 bags in 1935, the supply for the current season is 1,044,000 bags as compared with the 1930-31 to 1933-34 average of 1,053,000 bags. Analysis of the experience over the past twelve years suggests that with the level of consumer income and the retail prices of competing food products (bread, chuck roast, and potatoes) in 1935-36 the same as in 1934-35, the existing supply will bring an average f.o.b. rail price for the coming year in the vicinity of \$6.00 a bag. Last year's supply of baby limas was 17 per cent larger than average for the preceding four years. The carryover at the beginning of the current season was 116,000 bags, or 17 per cent of the 1934 crop. This was only a little heavier carryover than the average of 15 per cent from 1930 to 1933 but it was considerably larger than the 11 per cent carryover of a year ago. The average f.o.b. rail price was \$3.93 for the 1934-35 season, as compared with \$3.73 for the preceding year. The baby-lima crop of 1935 was estimated at 550,000 bags, and the supply is 666,000 bags as compared with the 1930-31 to 1933-34 average of 658,000 bags.

With a supply of 692,000 bags of Blackeyes, the 1934-35 season ended for that variety with only 41,000 bags, or 8 per cent of the 1934 crop carried over into the current crop year. Although the supply was 4 per cent larger than the average for the preceding four years, the average f.o.b.

rail price for the year was \$4.04 a bag, the highest since 1929-30, and \$1.11 a bag higher than in 1933-34. The seasonal average f.o.b. price of \$3.52 a bag for Small White beans in 1934-35 was the lowest for any variety grown in California. Supplies of this variety were 21 per cent larger than average for the preceding four years, although United States production of Pea beans was 9 per cent below that average. In September, 1935, 98,000 bags, or 24 per cent of the 1934 crop of Small White beans were still in California warehouses.

The California supply of 591,000 bags of Pink beans in 1934-35 was slightly above the average for the preceding four years. Owing to the extremely short national crop of Pinto beans, however, this supply of Pink beans was moved into trade channels, except for a small carryover of 29,000 bags in September, 1935, and the average f.o.b. rail price of \$5.41 considerably exceeded the price for each season since 1929-30. Because of their high prices in 1934-35, Pinto-bean production expanded greatly in 1935. Last year the local crop was 138,000 bags and the supply 140,000 bags, or more than twice as large as average for the previous four years. The average season price of \$6.27 a bag f.o.b. rail was the highest of all varieties grown in the state. The carryover at the end of the year was only 9,000 bags. Cranberry beans had a similar experience in 1934-35. The supply was 21 per cent above the 1930-31 to 1933-34 average. Virtually the entire supply of 138,000 bags was sold with an average f.o.b. rail price of \$5.67 a bag. A similar situation existed in 1934-35 for California Red beans, with the average f.o.b. rail price of \$4.69 a bag the highest since 1929-30. The national shortage of colored beans also assisted growers to dispose of 69,000 bags of Red Kidney beans in 1934-35 at an average price of \$6.26 a bag. With the prospective average supply of colored beans, 1935-36 prices for all these varieties may be expected to be lower than those of last year.

FLAXSEED

World supplies of flaxseed for 1935-36 from present indications will be smaller than last season with sharply increased production in the United States and larger European crops likely to be more than offset by the expected materially smaller Argentine crop. Little information is available for the 1936-37 world crop. Seedings in the United States will probably be slightly larger than in 1935.

Demand for linseed oil in the United States and abroad is anticipated to be somewhat better in 1935-36 than last season. In the United States, building activity, and industrial activity in general, are expected to be greater. In England building and industrial activity are expected to

be at least as high in 1936 as in 1935. In the rest of Europe it appears that industrial activity will be maintained at present high levels.

United States flaxseed production in 1935 is about half of average domestic requirements. The November 1 crop estimate of 14,213,000 bushels compares with 5,213,000 bushels harvested in 1934 and the five-year average of 15,961,000 bushels. The total consumption of six oils competitive with linseed oil, namely soybean, tung, fish, perilla, sunflower, and hempseed, is expected to be much larger in 1935-36 than in any year for which information is available, owing principally to the unusually large prospective crop of soybeans. This year's crop of soybeans is estimated as 96 per cent greater than that of last year. Imports of perilla and hempseed have been increasing and may continue to do so.

Lower prices for linseed cake and meal may offset in part the prospective firmer market for linseed oil, and tend to hold prices of domestic flaxseed somewhat lower than they otherwise would be. Prospective crushings of domestic flaxseed will produce approximately 230,000 tons of linseed cake and meal this season as compared with a total supply of about 173,000 tons in 1934-35. With more abundant supplies of other concentrates, prices of linseed meal will probably average well below those of last season.

California's flax industry has sprung up rapidly. In the past two seasons acreage harvested has increased from about 360 in 1933 to 40,000 in 1935. Production has risen from none in 1932 to 660,000 bushels in 1935. California ranks fourth among the flaxseed-producing states this year. The capacity of oil mills adapted to flaxseed crushing in California is large enough to accommodate any economically possible increase in local production. In the absence of accurate data on the quantity of linseed oil utilized in California, it is estimated that this use now amounts to the equivalent of about 1,000,000 bushels of flaxseed. Since flax competes mainly for irrigated land in California, its high yields and relatively high prices must be compared on a net-return per-acre basis with such crops as cotton, sugar beets, and truck crops. It is not clear that such a comparison will lead to any general extension at the expense of those crops. Where temperature, moisture conditions, and absence of weeds permit, it is possible that flax production may be profitably substituted for wheat or barley under nonirrigated cultivation.

Flaxseed prices in California are basically determined by those at Buenos Aires, Minneapolis, and Winnipeg, through the mechanism of transportation costs. The result of any future overproduction of California flax would be to force local prices down to a surplus basis to permit shipping flaxseed or linseed oil out of this area. Until that time

comes, if it ever does, the deficit in California's flaxseed supply will be made up as in the past by imports of foreign flaxseed and movement of linseed oil into California from the Middle West or eastern states by rail or coastwise water routes.

HOPS

With present acreage and average yields, world and United States hop supplies will continue to be more than sufficient for the requirements of beer production. Improved consumer purchasing power in the United States and England in 1936 should improve the demand for domestic hops. Any removal of the present heavy tax burden on beer, here or abroad, would have a similar effect.

World hop acreage and production have increased markedly since 1932 when the smallest acreage—96,000—since 1919 was cultivated. Under the stimulus of high prices, acreage of the eight leading countries doubled between 1919 and 1927, when it reached 183,000. The full-bearing capacity of this enlarged acreage was not reached until 1929 when production for these countries was 100 per cent larger than in 1919 and 12 per cent larger than the 1910–1914 average. With the precipitous fall in prices after the mid-twenties, production declined in 1932 to 44 per cent below the 1910–1914 average. Despite this decline, the discrepancy between production and consumption became more acute each year. Newer brewing processes require perhaps smaller quantities of hops than before the World War. The decline in consumer purchasing power during the depression and the heavily increased burden of taxation on beer were principal factors contributing to this decline. To secure for themselves preferred places in the shrinking market for hops, growers in Europe have resorted to every conceivable nationalistic device: high tariffs, import quotas on hops, quotas for the use of imported hops, governmental assistance in extending to growers credits of all kinds, remissions of taxes, purchase of hops by valorization syndicates, and export premiums.

Under the inducement of somewhat higher prices in 1933 due to the relatively small crops of the preceding two years and to the reopening of the United States market for legally produced beer of full alcoholic content, acreage in the eight leading countries increased 30 per cent from 1932 to 1934, and production in 1934 was 47 per cent above that of 1932. United States hop acreage in 1935 is 39,200. This is a small increase over 1934, and is 15 per cent above the 1915–1919 average. Production in this country in 1935 was officially estimated on November 1 to be

about 47,100,000 pounds but recent trade information indicates that about 35,000,000 pounds were harvested. This latter estimate is virtually the same as the 1915-1919 average crop and is 33 per cent less than the pre-War average production for 1910-1914 of 52,198,000 pounds. In that period, this country exported about 32 per cent of its crop, whereas in 1934-35, only 16 per cent of the crop was exported. The heavier pre-War exports compensated for the imports which averaged over 7,300,000 pounds. United States hop exports in 1934 amounted to only 40 per cent of the average from 1910-1914, while imports in 1934 were 5,528,000 pounds, or 75 per cent of the corresponding pre-War average. The net result is that in the five years before the War the net domestic hop supply, disregarding carryover, was only 82 per cent of the United States production, while in 1934 it was 97 per cent. The fact that former foreign markets have been largely lost is a prime reason for the excessive supplies and low prices of domestic hops. In the years 1910-11 to 1914-15 an average of 42,900,000 pounds of hops was consumed by United States brewers, but in 1933-34, 39 per cent less were used. In the past year brewers used about 31,500,000 pounds but this was still 27 per cent below the pre-War average. In comparison with this consumption the net domestic supply, disregarding carryover, was almost 40,000,000 pounds. This disparity has been intensified by mounting stocks of old hops which have been carried over in the hands of both growers and the trade. On September 1, 1935, carryover in growers' hands in the United States was estimated at 16,061,000 pounds, or 271 per cent larger than the average of 4,328,000 pounds from 1932-33 to 1934-35.

If beer production continues at the present rate for the next two or three years, the outlook will be for continued annual absorption of about 32,000,000 pounds of hops, imported and domestic. If beer production should be increased by 25 per cent over the present level, there would be 40,000,000 pounds of hops used each year.

Great Britain, now as before the War, takes the bulk of United States hop exports. That market, however, has shrunk because of declining beer production and hop consumption there, together with the fact that the English hop crop has not shown a similar downward trend. A comprehensive control plan in Great Britain has attempted to relieve their surplus problem.

Shifts have been occurring in the distribution of acreage and production between producing states in this country. California's acreage harvested has declined from an average of 37 per cent of the total in the five years ending in 1919 to 19 per cent in the past five years, while Oregon rose from 40 per cent to 67 per cent. Similarly with production, Califor-

nia declined from 49 per cent of the 1915–1919 total to 25 per cent of the 1930–1934 total, while Oregon increased from 30 per cent to 55 per cent between the same periods.

POTATOES

Indications are that the programs likely to be put into effect under recent potato legislation may have a decided influence on both potato plantings and marketings in 1936. The recently announced plan of the Agricultural Adjustment Administration of buying potatoes for diversion to feed or other by-products may strengthen prices. Since there are still many uncertainties in the program, developments may well be watched closely.

At present, with a potato-control plan in prospect, early reports indicate that commercial early and intermediate acreage in 1936 will be reduced about 4 per cent below that harvested in 1935. If weather conditions during the 1936 growing season are average, the smaller United States acreage would cause supplies of potatoes to be less than average and the prices and the total income received by potato growers probably would be materially higher than they were for the 1934 and 1935 crops. Although the demand for potatoes is relatively inelastic (that is, a decrease in total yield results in a greater total return to growers), too great a reduction in the acreage planted to potatoes in 1936, which would normally result in a reduction of supplies, might cause consumers to shift away from potatoes.

Largely as a result of low potato prices in the preceding years, total United States potato acreage was reduced considerably in 1925, 1929, and 1933. It is reasonable to expect that a sharp reduction would take place in 1936 plantings, but with the influence of the low prices received the last two seasons partly offset by the prospects of material benefits from some form of sales control, potato growers may not decrease their 1936 acreage as much as they did in former years. The extent of decrease will be influenced by the type of program put into effect.

On September 15 the United States average price received by potato growers was only 48.4 cents a bushel, as compared with 62.8 cents at the same time in 1934 and with a five-year base period (1909–1913) September average of 74.4 cents a bushel. The farm price of California potatoes on August 15, 1935 (the latest figure available), was 45 cents a bushel as compared with 50 cents on August 15, 1934. For the season of 1934–35 the United States average farm price of potatoes was about 47 cents a bushel, and for the 1933–34 season about 82 cents.

The distribution of the 1935 crop in the late states, which includes

California, is quite different from that in 1934 in that the eastern late states have a relatively small crop, or 81,284,000 bushels (estimated on November 1) as compared with 121,800,000 for 1934, while the central and western states have average or better crops. The November estimate for this section is 162,556,000 bushels as compared with 150,474,000 bushels in 1934. The 1934 crop in California amounted to 8,610,000

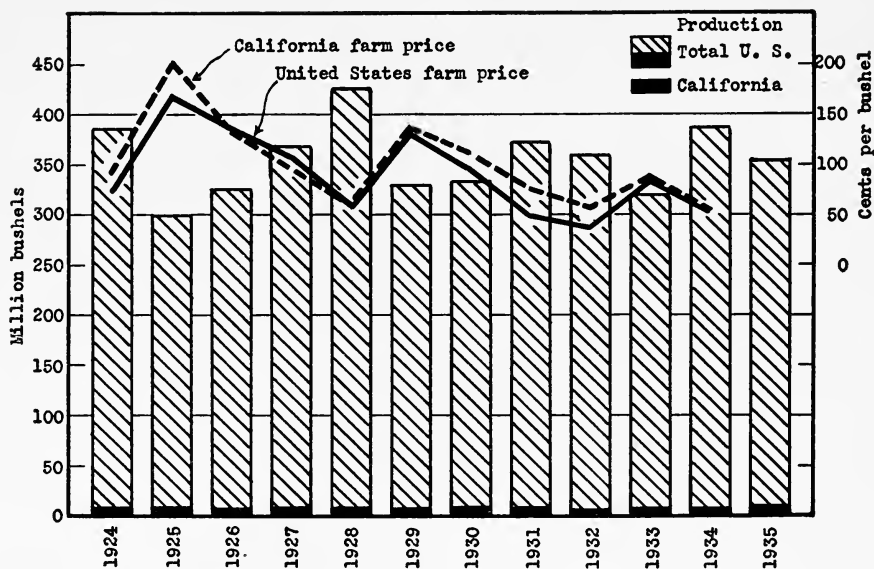


Fig. 5.—United States and California potato production and farm price per bushel.

bushels, while the November 1 estimate for 1935 is 10,350,000 bushels. In 1934 the western states had relatively short crops of potatoes, while the eastern and central states had very large supplies. Although the recent freeze reduced the 1935 estimate of production in the 18 late surplus states to a slightly smaller-than-average crop, the prospects are that stocks of potatoes carried into the late winter and spring marketing periods will be relatively large—perhaps more than 85,000,000 bushels. This supply of old potatoes carried over may have a depressing influence on the prices of early potatoes marketed during the first half of 1936.

In the second section of the early commercial group (South Carolina, Georgia, Alabama, Mississippi, Louisiana, California, and Texas outside the lower valley), the 1935 crop was reduced about 8 per cent below that of the preceding year. Commercial acreage in this group of states was sharply reduced from that of 1934, but heavy yields per acre

largely offset this cut in acreage. October reports point to acreage reduction in these states amounting to 6 per cent—about 4,000 acres—for the 1936 season. Most of this reduction is expected to occur in California, South Carolina, and Texas.

Because of the large 1934 potato crop in the United States, imports of this product were sharply reduced during the fiscal year 1934–35 to about 532,000 bushels, as compared with imports of 2,102,000 bushels in the preceding fiscal year. On the other hand, exports from the United States increased about 70 per cent to a total of 1,218,000 bushels for the 12 months ending June, 1935.

Figure 5 indicates the close relation between the California farm price and the United States price, which is largely influenced by United States production. As figure 5 shows, California production is a small percentage of the total, fluctuating about the 2 per cent level. The maximum production of 10,350,000 bushels, during the period included, came in 1935 and the minimum of 6,369,000 bushels in 1932.

RICE

Supplies of rice in the United States are about 8 per cent less than a year ago with the slight increase in production more than offset by the reduction in carryover. From present indications, domestic utilization in 1935–36 may be slightly below that of 1934–35, whereas exports may be larger because of the rebate of the processing tax which places American exporters in a more favorable position to compete with foreign rices. The carryover at the close of the 1935–36 season will probably be small.

The 1935–36 supplies of rice from the southern states are about 6 per cent smaller than in 1934–35. A carryover 71 per cent less than a year ago more than compensated for a crop 6 per cent larger.

The largest percentage reduction in rice supplies this season occurred in California. The 1935 California rice crop was estimated on November 1 at 2,884,000 bags of 100 pounds or about 16 per cent less than the slightly larger-than-average 1934 harvest of 3,449,000 bags. At the beginning of the current crop year, the carryover of rice in California was about 580,000 bags, or 20 per cent less than a year earlier. Consequently, the net supply (eliminating seed requirements) for this year is about 2,889,000 bags (rough and milled), or 18 per cent smaller than the estimated net 1934–35 California supply.

United States rice exports in 1934–35 were 36 per cent larger than in 1933–34, an increase which mainly occurred subsequent to the enact-

ment of the DeRouen Amendment to the act which allows rebates of processing taxes on exported rice. Exports, however, were still only about half as large as the average from 1928 to 1933. Trade restrictions of various kinds continue to limit exports to most European countries. Below-average exports to non-European countries reflect increased local production or larger use of foreign rice. Exports to Cuba (with which a trade agreement gives the United States preferential tariff rates) in 1934-35 were more than three times as large as on the average from 1928 to 1933. Reports of foreign production indicate larger crops than in 1934, especially in Japan. With a smaller California supply, prospects are for less exports to Japan.

The upward tendency in prices of California-Japan rice at San Francisco, which has generally continued for the past four years, may continue in the 1935-36 season.

SUGAR BEETS

The outlook for 1935-36 under the sugar-control program is for higher prices on beet sugar than in recent years. For 1936-37, the yield upon the acreage allotted to United States sugar-beet growers will be a principal factor affecting prices and gross incomes, if the continuation of effective control of the domestic sugar market is assumed.

Sugar-beet acreage in California increased from 112,600 in 1934 to 116,700 in 1935, although allotments under the Agricultural Adjustment Administration amounted to about 125,000 acres. In southern California acreage declined 16 per cent from 37,754 to 31,780, while in the central and northern parts of the state it increased 13 per cent from 74,879 to almost 85,000 acres. Under the 1936 sugar-control plan, acreage allotments for California are expected to be the same as in 1935, or larger. The yield declined from 14.9 tons an acre in 1934 to 13.0 tons in 1935, or the same as the average for 1929-1934. The resulting crop was estimated on November 1 to be 1,521,000 tons. Although this was less than the 1934 crop of 1,579,000 tons, it was still nearly a third larger than the 1929-1934 average. With the average yield for the past seven years of 13.0 tons an acre, the allotted 124,927 acres, if they were all harvested in 1936, would produce 1,624,000 tons.

The United States acreage of sugar beets for harvest in 1935 was 775,000, or 1 per cent greater than that in 1934. The November 1 estimate of production was 8,163,000 tons, or 9 per cent more than the 1934 crop, although it was 8 per cent less than the 1929-1933 average crop of 8,903,000 tons.

The farm price of sugar beets in the United States for 1934-35 was \$5.04 a ton. The adjustment payments of \$1.75 a ton to growers bring them a total of \$6.79 a ton, which was the parity price. For the 1935 crop, advance payments of \$0.80 a ton on estimated sugar-beet production have been announced. The total 1935 adjustment payments will depend upon the prices which producers receive for that crop in relation to parity prices.

Consumption of sugar in the United States for the first eight months of 1935 was about 4.5 per cent ahead of last year. Beet-sugar refiners distributed in that period 54 per cent of their 1935 quota of 1,550,000 short tons (raw equivalent), leaving a balance of about 713,000 tons. Stocks on hand on August 1 were about 325,000 tons. If the 1935 beet-sugar quota is filled, almost 400,000 tons of the 1935 crop will have been used before the 1936 year begins. On the basis of the November 1 estimate of sugar-beet production, about 1,355,000 tons raw equivalent might be produced. If 400,000 tons of this were used in 1935, there would be available only about 1,000,000 tons raw equivalent of beet sugar, or two-thirds of the probable quota to fill the needs for three-quarters of 1936, which includes the months of heaviest consumption. This indicates a small supply of beet sugar for the coming season. On September 1, 1935, 90 per cent of the total entries of sugar admissible in this calendar year from Cuba, the Philippines, Puerto Rico, Hawaii, and the Virgin Islands had been received and charged against the quotas. With the new Independence Act effective in the Philippines in November, 1935, export of sugar from that area to the United States will be reduced below the 1935 quota.

Visible world supplies of sugar are about 1,700,000 tons lower than they were two years ago. With an extremely small crop in prospect in Java, the outlook for 1936 is for nearly normal world supplies.

SWEET POTATOES

Sweet-potato prices are expected to average slightly higher during 1936 than they did last year. A reduced production of Irish potatoes and a generally higher level of consumer purchasing power should tend to strengthen the price situation for sweet potatoes.

Total 1935 sweet-potato production was forecast on November 1 at approximately 68,186,000 bushels, a net increase of about 786,000 over the 1934 crop, and 4,345,000 bushels above the average production for 1928-1932. The average yield per acre in California for 1927-1934 was 97 bushels, as compared to 89 bushels for the entire country. The

United States yield per acre for 1935 was estimated at 90.1 bushels on November 1.

The United States average price to growers of sweet potatoes during the 1934-35 season (July-June) was almost 81 cents a bushel, the highest level since 1930. On September 15 of the present season, the price to growers averaged about 74 cents, as compared with 88 cents at the same time in 1934.

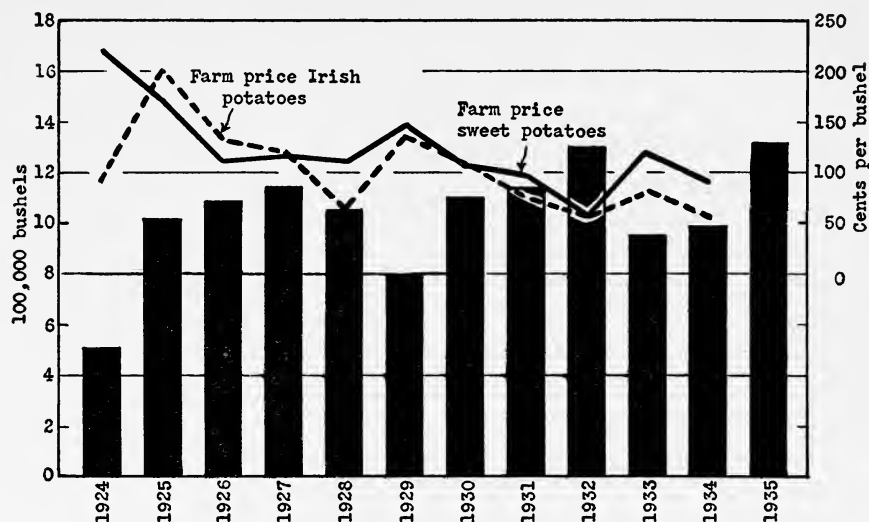


Fig. 6.—California production and farm price of sweet potatoes and farm price of California Irish potatoes.

Of the total annual production during the last three years, it is estimated that about 4 per cent was used for seed, 5 per cent was fed to livestock on the farms, 5 per cent was considered loss, waste, and shrinkage, 30 per cent was consumed as food on the farms where grown, and the remaining 56 per cent was sold to commercial trade.

California production to November 1, 1935, was estimated at 1,320,000 bushels, which is about 2 per cent of the United States production. The total California shipments for 1935 was 535 cars of which 532 cars were shipped from Merced, Stanislaus, and San Joaquin counties. Considerable quantities of sweet potatoes are also produced in southern California. During the 1934 season, 381 carlot equivalents of locally produced sweet potatoes were trucked into the Los Angeles market.

There has been an increasing trend towards the use of California grown sweet potatoes in this state. During 1929 and 1930 about 75 per cent of the sweet potato unloads in Los Angeles were produced in Cali-

fornia. This percentage rose to 82 for 1931–1933 and was 94 in 1934. In San Francisco these percentages were 87, 90, and 98 for the years 1932, 1933, and 1934, respectively.

California sweet-potato production probably has more influence on California farm price than United States production. The important factors influencing this price are (1) California production of sweet-potatoes, (2) California price of Irish potatoes, and (3) United States production of Irish potatoes. The relation between the first two factors and the California price of sweet-potatoes for the past eleven years is given in figure 6.

TOMATOES

Tomatoes for Fresh Market.—Owing to the low prices received for the record large 1935 tomato crop for fresh-market shipment in the United States, the 1936 prospects are for reduced plantings throughout the country. Prices received for tomatoes in 1934 were relatively high and caused the 1935 United States' tomato acreage for fresh-market shipment to be increased 8 per cent to 175,270 acres—a record high level. In view of this heavy production, prices to growers declined to an average of \$1.12 a bushel for the 1935 season as against \$1.28 in 1934, and \$1.34 for the 1929–1933 average.

For the country as a whole, yields per acre in 1935 averaged about the same as in 1934, or 113 bushels. Preliminary estimates indicate that 19,884,000 bushels of tomatoes were produced for the fresh market in 1935 as compared with 18,279,000 in 1934. These estimates give California a production of 3,343,000 bushels on 24,930 acres, or a yield of 134 bushels per acre.

Prices to growers for early tomatoes averaged \$2.12 a bushel in 1935, ranging from \$1.25 in Texas to a high mark of \$2.75 in Imperial Valley. This average was somewhat lower than that of 1934 and the 1929–1933 period. This decline of prices in some Florida areas, the lower valley of Texas, and the Imperial Valley of California combined, may tend to reduce slightly the 1936 early-spring acreage in this group of states. The plantings of 1935 spring-grown tomatoes in the Imperial Valley totaled 3,000 acres, or about 13 per cent of the total for this group. Considering all three of these states together, yields of the early-spring crop averaged 68 bushels per acre, while that for the Imperial Valley was 102 bushels per acre.

Prices to growers in the intermediate tomato states dropped to the extremely low level of \$0.54 a bushel in 1935, as compared with \$0.92 in 1934, and an average of \$0.98 for 1929–1933. Hence, it is likely that

the acreage in this group of states will be materially reduced in 1936. New Jersey and California produce half the tomatoes in this group. California produced 1,550,000 bushels in 1935 on 9,170 acres, a yield of 169 bushels per acre. This group greatly increased its tomato plantings in 1935 and had a total of 49,300 acres, which, owing to favorable growing conditions, produced a record crop of 6,971,000 bushels.

The southern district of California, which produces late tomatoes for the fall market, probably will increase its 1936 plantings as a result of the very favorable returns estimated for the present season. About 7,800 acres were grown in southern California in 1935, but because the average yield per acre declined to 127 bushels, the final production of the crop was expected to be only 991,000 bushels, or 5 per cent less than that in 1934. However, this would still be 22 per cent above the 1929-1933 average. Prices to growers are expected to average as high as \$1.75 a bushel, as compared with \$1.62 in 1934, and \$1.48 a bushel for the 1929-1933 average.

The northern district of California may also be expected to increase its acreage because its tomatoes in 1935 brought the highest money income per acre since 1928. This district had a production of 496,000 bushels in 1935 on 4,960 acres, a normal yield of 100 bushels per acre. The price, however, was the highest since 1928, \$1.83 a bushel.

Tomatoes for Canning.—If packers respond to the low prices received for the canned product, as they have in the past, growers will receive lower prices for canning tomatoes in 1936 than in 1935. Packers are expected to reduce their 1936 contract acreage, which is ordinarily 85 per cent of the acreage for manufacture. Approximately 60 per cent of the total United States' tomato production, and 80 per cent of the California production, is used for manufacture.

After the large increase in acreage from 1932 to 1934, United States' acreage was again expanded in 1935 and a total of 488,200 acres was planted, or an increase of 13 per cent over the record-high acreage of 1934. California had a similar increase from 55,300 acres in 1934 to 62,940 in 1935. In spite of unfavorable growing conditions, resulting in low yields per acre, total production of tomatoes for manufacture probably will exceed production of any year except that of 1925. Owing to the relatively high prices received by canners for canned tomatoes in December, 1934, and in January, 1935, contracts were made for this large production at a price 4 per cent above the average of 1934 and 12 per cent above the record-low price of 1932.

As a result of a large supply of canned tomatoes, prices received by canners are about 17 per cent less than prices at this time last year and

are about the same as the low prices in the autumns of 1930 and 1931. Since the level of contract prices to growers is determined to some extent by the prices received by canners 6 months prior to the planting season, it appears that growers in 1936 will not be able to contract tonnage at prices equal to those of 1935.

An analysis, by states, of the 1935 production for manufacture indicates that the tonnage used for canned tomatoes may be a little less than 50 per cent of production, the remainder going into other tomato products. The pack may reach a total of 29,000,000 cases (basis 24 No. 2 cans). This pack would be about the same as the large pack of 1930, and would exceed the average of the four intervening years, 1931–1934, by 46 per cent. Although the carryover stocks in canners' hands on August 1, 1935, were unusually small, the total supply of domestic canned tomatoes (pack plus carryover) for the 1935–36 marketing season probably will exceed 30,000,000 cases (basis 24 No. 2 cans).

Disappearance of canned tomatoes from canners' hands during the 1934–35 season was about average, probably 21,900,000 cases. With the existing level of prices received by canners and with the increase in consumer buying power that is anticipated in 1936, movement of canned tomatoes into consumption channels may be somewhat larger than disappearance during last season.

Exports of canned tomatoes continued at a low level with only 69,000 cases (basis 24 No. 2 cans), exported from August 1, 1934, through July 31, 1935. Imports during the same period were the equivalent of 2,570,000 cases (24 No. 2 cans), as compared with 2,790,000 cases during the previous season. During August, 1935, imports of canned tomatoes from Italy were much less than during the corresponding 1934 period. It is probable that imports during the 1935–36 season will be smaller than those of any recent year.

WHEAT

Average yields on the prospective United States acreage to be harvested in 1936 would produce more wheat than is usually consumed here, resulting in a surplus which would tend to reduce domestic prices in relation to foreign prices so that exports would be possible. Largely as a result of small crops in each of the last three years, domestic-wheat prices, beginning with the 1933 crop, have been 20 to 30 cents above a level at which any significant volume could be exported. Probably, however, any volume of wheat that might be available for export would not result in depressing domestic prices as low as those in 1931 and 1932, when this country was last on an export basis. World business condi-

tions are expected to be materially improved over those existing at that time, and prospective wheat supplies both in the United States and abroad promise to be materially lower. War developments might materially influence the course of world prices. For the long-time outlook, wheat prices in the United States will probably be on an export basis and world prices after the present year are likely to fluctuate around somewhat lower levels than during 1935-36 unless there is a substantial reduction in acreage or a series of unfavorable harvests.

Reduced United States production in the last three years has been due mostly to low yields and heavy abandonment, since the average area sown for the crops of 1933-1935 was only about 2 per cent below the average for the three years preceding. This reduced production has lifted domestic prices 20 to 30 cents above what might have been expected with more nearly normal yields. As the result of the relatively short crops of these three years, the carryover in the United States is expected to be reduced from the record high on July 1, 1933, to near normal proportions by July 1, 1936.

Total wheat supplies in the United States for 1935-36 are estimated at 751,000,000 bushels, consisting of a carryover of 152,000,000 bushels and a crop of 599,000,000 bushels. The effective supply, however, is less than these figures indicate since much of the crop, particularly spring wheat, is of low milling value. Wheat utilization in the United States in 1935-36, considering that more wheat of light test weight is necessary to make a barrel of flour and that unmillable lightweight wheat will be fed to livestock, is expected to be around 650,000,000 bushels. Because of the shortage of good milling spring and hard winter wheats, net imports of high-test-weight milling wheat this year may be in the neighborhood of 35,000,000 bushels.

Partly as a result of revisions in wheat-allotment contracts but largely as a result of increases on the part of growers not under contract, seedings for the United States crop of 1935 were considerably in excess of those for 1934 and approximated the area seeded during the 1930-1932 period. The acreage which has been and will be planted for harvest in 1936 is likely to be as large as that seeded for the 1935 crop, or larger. An area of 66,000,000 acres, as in 1935, with average abandonment and yields would result in a crop of 825,000,000 bushels. Even if yields in 1936 should be rather low, production would probably be equal to domestic utilization, and with average or above-average yields a considerable surplus above domestic requirements would be obtained. California production in 1935 was about 408,000 tons. This was 32 per cent greater than the average crop of 308,000 tons for the preceding five

years and was the result of a yield 10 per cent greater than average on an acreage 21 per cent greater than the five-year average.

Wheat prices in the relatively unprotected world markets, now higher than at any time since 1930, reflect the prospects of short crops in the Southern Hemisphere, the unsettled political situation in Europe, and an improvement in the world business situation. Total supplies, although still large, were greatly reduced during 1934-35. Severe droughts and rust damage were the major factors contributing to the reduction of the excessive world stocks of wheat accumulated during recent years. Although world stocks are expected to be somewhere near normal by the end of the 1935-36 crop year, the elimination of the surplus promises to be only temporary unless a substantial reduction in acreage is made. Average yields in 1936-37 on present world acreage would result in a crop of around 3,700,000,000 bushels, about equal to the average production during the years 1928-1932 when, despite higher consumption than at present, stocks accumulated rapidly. This would tend to cause world prices in 1936-37 to be lower than in the fall of 1935. World prices, however, will probably be materially higher than the levels of 1931-32 and 1932-33, which was the last period in which this country was on an export basis.

BEEF CATTLE

With an increase in the marketings of grain-fed cattle in 1936, prices of the better grades of slaughter cattle are likely to average lower than in the corresponding periods of 1935. Because of the reduced supplies of the lower grades of cattle, especially during the first half of 1936, and the continued small supplies of pork, prices of such grades are likely to be relatively high as compared with those of the better grades and they may average as high as those of a year earlier, or higher. It is expected that seasonal price movements on all grades of cattle throughout 1936 will be more nearly normal than they were in 1935. In California this indicates a lower price during the six months beginning in June. From a seasonal standpoint, cattle prices are relatively strong and this situation is expected to continue well into the present winter (1935-36).

Slaughter of cattle during the first six months of 1936 is expected to be smaller than during the corresponding period in 1935. The slaughter supply of 1936 is expected to include a much larger proportion of steers and a smaller proportion of cows, heifers, and calves than in the previous year.

It is not expected that the number of cattle in the United States at

the beginning of 1936 will be greatly different from the number a year previous. The trend in cattle numbers will probably be upward during the next few years. Herein lies a danger because it is highly probable that hog numbers will move upward also, and the supply situation with reference to both cattle and hogs combined, at the beginning of 1939, may not differ greatly from that at the beginning of 1933 when numbers of both were relatively great. As far as California is concerned, cattle numbers are likely to be slightly greater on January 1, 1936, than they were a year previous. In most of the other states west of the Mississippi River, cattle numbers will probably tend to increase during the next two or three years. A series of good feed years will tend to speed up the rate of increase, especially if cattle prices remain fairly high. A continuation of the conditions with respect to deficient rainfall might check the increase materially.

Consumer demand for beef and veal in the United States and within California in 1935 has been considerably stronger than in 1934, and there are indications that further improvement may occur in 1936. Meats are being faced with increased competition from other foods, but consumer purchasing power is also being increased.

Imports of live cattle in the United States during the first eight months of 1935 totaled 279,000 head as compared with 50,000 and 60,000 head in the corresponding period of 1934 and 1933, respectively. About 50,000,000 pounds of canned beef were imported into the United States during the same period, as compared with about 26,000,000 pounds in the corresponding period of 1934. Although the latter imports are subject to a duty of 6 cents a pound, restrictions in imports of beef into Great Britain from South America have tended to increase imports into the United States in the form of canned beef.

A steady upward movement in California prices has taken place since 1933. Prices paid California producers for beef cattle during the first 9 months of 1935 averaged \$6.64 per 100 pounds as compared with \$4.30 for the similar period of 1934, and \$4.07 for the corresponding months of 1932. The average price received by California producers for veal calves during the first 9 months of 1935 was \$7.66 per 100 pounds as compared with \$5.48 in 1934 and \$5.02 in 1933. Unquestionably the higher 1935 price was partly the result of increased consumer purchasing power but the chief causal factor in the advance was the very short supply of hogs and the high prices of hog products. The acute shortage of pork has provided beef-cattle owners with an outlet. A great volume of consumption has been diverted from pork to beef.

DAIRY

While readjustments in numbers of dairy cows may be necessary between certain sections of the state, there are sufficient dairy cows in the nation and state to produce milk for such products as may be demanded. Tuberculosis-eradication campaigns and the marketings of cattle reacting to Bang's disease undoubtedly will continue to be causal factors in dairy-cow slaughter in many sections of the state. The present is a most opportune time for such work.

No marked change in milk-cow numbers is in prospect for the next two years in the United States. Numbers on January 1, 1936, will probably be in the neighborhood of 24,500,000 which will be about 600,000 less than on the same date in 1935 but approximately 2,000,000 more than the average for the years 1922-1931. The number per person in the United States at present is about the same as the average over the past ten years. California numbers have not changed materially during the past eight years and from estimates on heifers about to come into production, it would appear that this number is likely to remain stationary.

During 1936 total milk production for the United States may be expected to be about 4 or 5 per cent greater than in 1935, provided abnormal weather conditions do not intervene. Stocks of dairy products are larger than they were a year ago, and as a result, total supplies of dairy products may be larger than in the winter of 1934-35.

Total production of manufactured dairy products during the first 9 months of 1935 show little change from the similar period of 1934. Concentrated-milk production has been somewhat higher, while that of butter and cheese have been somewhat lower. Beginning in the summer of 1935, however, cheese production began to forge ahead of that in 1934.

Indications are that in California the decline in the milk and cream consumption in the urban areas is probably past. With a further improvement in business, milk and cream consumption will probably show an increase over the low level reached during the depression. During the last few years surplus milk in city milk sheds has been converted into manufactured dairy products. Some increase in the consumption of milk and cream seems probable during the coming year as a result of expanding employment. Any considerable improvement in business conditions would probably send butter prices relatively higher than those paid for market milk. At present butter prices are low in relation to other commodity prices. Small lard supplies during the winter of 1935-36 and the spring of 1936 will tend to support butter prices.

Cheese consumption in 1935 has been running ahead of the previous year. Short supplies of meats have been a factor in stimulating cheese consumption and will continue to be so for a time.

California milk-fat prices are higher in relation to concentrates than they were a year ago and during 1936 they will probably average considerably higher in relation to concentrates than in 1935. However, they will probably continue to remain low in relation to meat animals in 1936. In some California areas, this relation may check dairy production, although the effects of this situation will be more largely felt in the Middle West.

Replacements will continue to be needed in the Los Angeles milk shed. It would be advantageous for dairymen in sections of the state where feed and pasture are abundant and cheap to look towards the filling of this demand.

During the past year prices abroad have improved materially. There is little likelihood of heavy importations of butter, and conditions for the exportation of concentrated milk are more satisfactory as far as price relations are concerned.

HOGS

If there is no change in the hog-processing tax, hog prices in the 1935-36 marketing year (October, 1935-September, 1936) are expected to average somewhat higher than in 1934-35. On account of differences in supplies of hogs during different seasons of the year, the price relations between the seasons are apt to be confusing. During the first quarter of the marketing year (October to December, 1935), hog prices are likely to average markedly higher than a year earlier because of the very small supplies. As the marketing year advances, progressively smaller decreases in supplies will occur, and in all probability an increase will occur in the last quarter (July to September, 1936). The supply of hogs in the summer of 1936 will be relatively large when compared with those available in the earlier part of the marketing year. Average weights of hogs slaughtered in 1935-36 will be heavier than in 1934-35, which will offset in part the decrease in the number slaughtered.

On account of the progressive increase in supplies, the rise in prices which usually occurs from December to March in California as well as in the Middle West may not occur. Sometime during this latter period, hog prices are likely to go to the levels of the corresponding periods of 1935. With the 1936 summer supply relatively large, both in relation to the winter supply and to that of the summer of 1935, prices during the last half of the marketing year (April, 1936-September, 1936) may be

expected to average no higher than those of the corresponding months of a year earlier and may be lower. In view of this situation, it would seem advisable for California producers to "crowd" their hogs for the market during 1936. This situation has been reflected in the increased fall pig crop of 1935. Estimates place the increase in hog production for the United States in 1936 over 1935 at 25 per cent. It is highly probable that hog production cannot be brought back to normal until 1937 or 1938. If feed-grain production in 1936 should be average or better, a further material increase in hog production would occur in 1937 both in the nation and in California.

With the production of corn and barley in 1935 much greater than in 1934 and hog supplies low, it is expected that the hog-feed price ratio this winter will not only be unusually favorable for the feeding of hogs but also will be a stimulus to increased hog production in 1936. If any hog-production program by the Agricultural Adjustment Administration is to follow the one that expires November 30, 1935, it is probable that its provisions will be such that hog production in 1936 will be as large as production would be in the absence of a program.

Stocks of pork in storage on October 1, 1935, were the smallest on record, being 47 per cent less than those of the year earlier and the five-year average. Lard stocks on October 1 were the smallest on record for that date and were 57 per cent less than the five-year October 1 average.

Further improvement in consumer demand for hog products is probable, but the prospects are for continued small exports of United States hog products to foreign markets. Foreign import restrictions may be liberalized and European production, especially of lard, will be at a low level in 1936. Reduced supplies available for export from the United States and the high domestic price level will be the major factors limiting exports in 1936.

During the first 9 months of 1935, hog producers in California received an average of \$8.84 per 100 pounds as compared with \$4.32 during the similar period of 1934 and \$4.07 in 1933. The rise of more than 201 per cent between the low price of \$3.55 in May, 1934, and the high price of \$10.70 reached in August, 1935, was the largest percentage increase on record in such a short space of time.

HONEY

Weather has a greater effect on honey and wax production than on that of many other agricultural commodities. Honey production in the United States is highly seasonal, almost 80 per cent of the crop being

produced in the 4 months, May to August. The conditions surrounding plants during the winter and early spring affect the honey flow during the largest production period. Honey plants are reported to be in good condition in most sections of the United States, while colonies seem to have ample young bees and to be in a sufficiently strong condition for the winter.

The 1935 United States honey crop will probably not be over 140,000,000 pounds. The five-year average for 1929-1933 was 173,000,000 pounds. It is anticipated that producers will have little or no carryover of the 1935 crop into 1936. The 1935 comb-honey crop was exceptionally light. The intermountain area which supplies California with much of this product reports a comb-honey crop 25 to 40 per cent of normal. Owing to low prices received during the last few years many beekeepers have changed from comb to extracted-honey production.

In California there is a noticeable relation between the cumulative rainfall over a series of years and the per-colony yield. Given normal rainfall and satisfactory growing conditions for plants, the California 1936 crop might well be average or larger. The 1934 production was approximately 10,000,000 pounds—a third less than the 1929-1933 average. In all probability the 1935 yield will total somewhat higher than that of the previous year, especially in southern California.

Honey consumption for the United States in 1935 will probably be only a trifle over 1 pound per capita, as compared with an average of 1.5 pounds for 1928-1931. Depressed business conditions and below-normal production beginning in 1930 have been contributing causes to the low consumption.

Producers' prices for extracted honey in the United States during the first 8 months of 1935 averaged about 6.4 cents a pound as compared with 5.6 and 5.0 cents for the same periods in 1934 and 1933, respectively. Summer prices in 1935 were at times lower than those of the previous year. Producers' prices strengthened materially in the fall of 1935, and it is probable that they may move higher and remain on higher levels until the 1936 production season begins.

Demand for extracted honey has improved—retail prices in the United States during the first 8 months of 1935 averaging 12.2 cents a pound as compared with 11.4 and 10.4 cents in 1934 and 1933, respectively. Improved demand for comb honey is indicated in the retail price of sections—15, 18, and 20 cents in the first 8 months of 1933, 1934, and 1935, respectively.

Prices paid California producers for extracted honey have been lower during the first 10 months of 1935 than during the same period of 1934.

During October, 1935, California honey prices, especially orange and sage, strengthened materially. If business conditions continue to improve, probably some appreciation in price will occur during the winter of 1935-36 and prices will remain on a higher level, at least until the new crop year opens. Prices have been depressed in comparison with other honeys partially, at least, on account of a lack of export demand.

California producers are significantly interested in healthy export conditions, since foreign outlets are highly desirable, if not essential in years of normal honey production. Ordinarily from 50 to 70 per cent of all United States honey exports has been from California ports. Total exports from California have fallen from a high of 9,000,000 pounds in 1927 to 2,500,000 pounds and 1,500,000 pounds in 1931 and 1932, respectively, and in the fiscal year ending June 30, 1934, to 432,000 pounds. While exports to almost all of the European countries have declined, the most serious situation has come about in connection with German imports. Germany imported an average of between 6,000,000 and 7,000,000 pounds annually in 1927-1929, taking with Great Britain the bulk of the United States exports. In the year ending June 30, 1934, however, German imports from the United States were but slightly over 5,000 pounds. The outlook for American honey in Germany seems to be unfavorable because the American exporters of honey are apparently unwilling to make arrangements to bring in German goods in exchange as required by Germany. Total German honey imports have been cut in half since 1929 and during the past four or five years domestic production has increased somewhat. It is also stated that the prices of American honey have not been competitive with those of producers in other countries.

Total United States exports of honey have declined but not so much relatively as those from California. In 1927 total exports were 12,000,000 pounds. In 1930-1931 the average was approximately 4,000,000 pounds while in 1934 totals were less than 2,000,000 pounds.

California beeswax prices during the first 10 months of 1935 have averaged about 0.75 cent a pound higher than those of the same period in 1934—although there has been some weakening since January, 1935. A continued increase in business activity will strengthen beeswax prices. Imports of beeswax have kept at relatively high levels, even during the recent years, and these, together with beeswax substitutes, have served to depress beeswax prices.

POULTRY AND EGGS

Egg supplies are increasing in comparison with those of the previous year and this increase will continue into 1936. Even though demand conditions may improve, these will only partially offset the expected increase in egg supplies during the remainder of 1935 and the first half of 1936. The pronounced price improvement in 1935 induced an increased hatch, and a continuance of favorable conditions during the present winter of 1935-36 is likely to induce an increased hatch of young chicks in the spring of 1936 and result in a lowering of the relative price of eggs during the latter half of 1936.

The number of layers in United States farm flocks in the first half of 1936 is likely to be greater than in the similar 1935 period, and with a prospective higher rate of production, larger supplies of eggs are indicated. This will be the case if the present favorable relation of egg to feed prices continues.

Reports from hatcheries throughout the United States indicate that the number of salable chicks hatched in 1935 was from a fifth to a fourth greater than they were in 1934. Especially high have been the increases in the Pacific Coast states. This indicates an expansion in the commercial egg-producing area on the Pacific Coast. Sales of California hatcheries in September, 1935, were 70 per cent greater than in September, 1934, and about 250 per cent greater than the September five-year average for 1930-1934.

Egg receipts at four markets—New York, Chicago, Boston, and Philadelphia—during the first 9 months of 1935 were 5 per cent less than the receipts for the same period of 1934. As the season has progressed, egg receipts have increased, and since July, they have been greater than they were a year previous. September, 1935, receipts were over 16 per cent greater than they were the previous September. If any considerable decline in egg prices comes about during the winter of 1935-36, which changes the favorable relation between egg and feed prices now existing, the culling of laying flocks will be stimulated. If, however, the relation is continued the production of not only the spring but also that of the summer of 1936 would exceed that of the previous year.

The storage situation on November 1, 1935, was not so favorable as it had been earlier in the year. On this date the number of shell and frozen eggs in storage was almost identical with the number held on November 1, 1934, but about 6 per cent less than the November 1, 1930-1934 average. Storage stocks were not being reduced in September and October, 1935, as rapidly as they had been in September and October

during the previous five years. In California, storage holdings of shell eggs have been slightly larger in November, 1935, than they were a year previous.

The feed situation has been favorable to California poultrymen during 1935, the relation between egg and feed prices being the most advantageous since records were first begun in 1910.

With the relatively high levels of egg prices, imports of eggs, particularly dried eggs, increased sharply during the first half of 1935 as compared with the same period in 1934. If egg prices continue relatively high, imports will probably be maintained well above those of 1934 during the remainder of 1935 and the first half of 1936.

Poultry supplies will probably be short during the winter of 1935-36, and prices are likely to be relatively high. The increase in the number of chickens on farms is not likely to be reflected until the spring of 1936 because of the tendency to save a relatively large proportion of pullets for layers. Receipts of fresh killed poultry at four large eastern markets during the first 3 weeks of October, 1935, were approximately 20 per cent smaller than during the same period of 1934. A continuance of the favorable relation between poultry and feed prices would probably be felt in increased hatchings of chicks in the spring of 1936 and a resulting increase in supplies during the second half of 1936. Storage stocks of dressed poultry on October 1, 1935, were almost 30 per cent smaller than on the same date in the previous year and about 18 per cent less than the five-year average. Stocks by classes were smaller on everything except turkeys, which were more than double the stocks in storage on October 1, 1934. Both storage stocks and marketings are likely to be below average up to July, 1936, and as a result, prices will probably be maintained at high levels relative to the corresponding pre-War averages. In spite of the smaller supplies and higher prices, the trade output for the four eastern markets during October, 1935, was slightly above that of a year earlier, showing some improvement in demand. During the past few months poultry markets have derived considerable strength from the relatively high prices of other meats.

Indications point to a smaller 1935 turkey crop than that of 1934. In the mountain states a decrease of 13 per cent from last year is the estimate, while in the Pacific Coast states it is less than 5 per cent. California supplies will probably be about the same. Feed supplies in all sections are much larger than a year ago, so that turkeys will probably be fed to heavier weights for both the Thanksgiving and Christmas markets.

SHEEP AND WOOL

The decline in sheep numbers which began in the United States in 1931 appears to have been arrested. On January 1, 1936, the number in the United States will probably be no smaller than a year earlier and it may be greater. In any case the number will be materially greater than that for the average of the ten years ending in 1929.

If feed and grazing conditions continue favorable, sheep numbers in the western states may be upward for several years. In the "native" sheep states little change is anticipated. In the latter area an increase in grassland, coming about as a result of crop-control programs, would tend to encourage the expansion of livestock production, including sheep husbandry which is best suited for such land.

In California the increase in numbers took place in 1934 and as a result sheep numbers on January 1, 1935, were only slightly less than the average of the three high years 1929, 1930, and 1931. Numbers are probably now equally as large as they were a year ago, or larger. The early prospects for the 1936 lamb crop are very good. Indications are that there will be an increase in the total number of ewes that will produce lambs for the 1936 season. Practically all this increase will occur in early-lambing districts. Prospective adjustments in range allotments on public lands may result in reducing sheep numbers in late-lambing areas, and a transfer of some flocks there to early-lambing districts of the state.

Of especial importance to the California lamb producer is the fed-lamb crop. The number of lambs to be fed for market during the 1935-36 feeding season is not expected to be substantially smaller than the normal number fed. The number to be fed in Colorado, in the Arkansas Valley, and in the Scottsbluff area will probably be somewhat smaller than the number of a year earlier. Indications are that any scarcity of fed lambs will be in the latter part of the season—March and early April.

The small supplies of fed lambs in prospect for the coming winter and the probable improvement in consumer demand are likely to result in higher lamb prices from December, 1935, to April, 1936, than in the 1934-35 season, and higher than for any season since 1929-30.

During the spring of 1935, California lamb prices were somewhat under those of 1934. After the run of spring lambs, California lamb prices began to trend upward and in September and October, 1935, they were higher than they had been in the same months since 1929. The average (weighted) price received by the California producer dur-

ing the first 9 months of 1935 was \$6.76 per 100 pounds, as compared with \$7.07 in the same period of 1934 and a low of \$4.82 in 1933.

The lamb crop of 1935 was materially smaller than that of 1934, yet the distribution of slaughter was such that a much larger part of the slaughter occurred when the main part of the California spring-lamb crop was moving to market.

United States wool production in 1935 was smaller than in the previous year and some decrease has occurred in foreign wool production. Stocks of wool at the end of September, 1935, were materially smaller than a year earlier.

Consumption of wool by domestic mills in 1935 will be larger than the relatively small amount consumed in 1934 and will probably be one of the largest since 1918 for which records are available. In view of this high rate of consumption the 1936 total consumption will be smaller than that of 1935. With the small carryover the clearance outlook for 1936 appears to be favorable.

Prices received by farmers for wool in the United States declined steadily from 26.9 cents a pound in March, 1934, to 16.1 cents in May, 1935. From March to October, 1935, the improvement in price has been approximately 30 per cent. Save for 1933, the California October farm price has been the highest since 1929. Steady to higher prices are probable during the remainder of the present wool-marketing season (up to April 1, 1936). As it seems probable that increased buying of foreign wool by the United States industry will be necessary before the beginning of the new season, developments in the foreign wool market will be of increasing importance to the domestic situation.